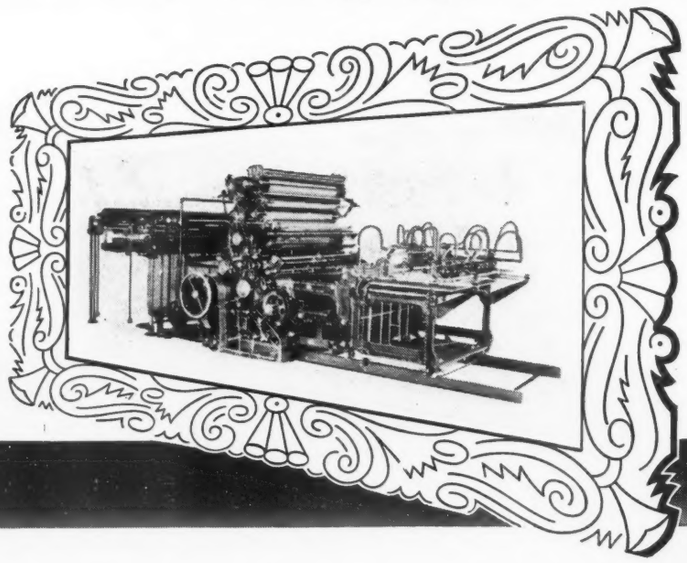
PRINTING EQUIPMENT *Engineer*

WORK HORSES of the Lithographic Industry

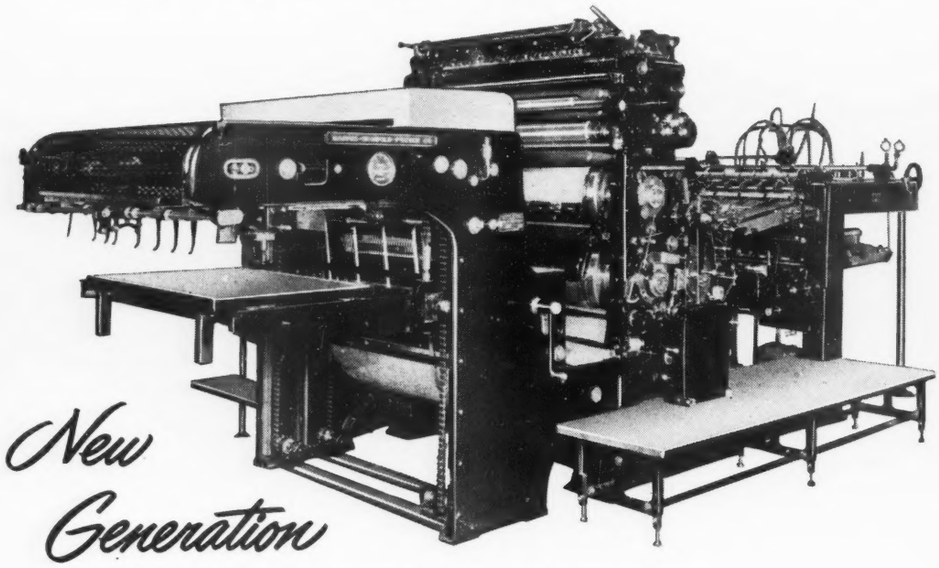
Veteran

For 20 years, the veteran Harris S7L set the pace for an industry. In its prime, guaranteed speed was twice as fast as the letterpress equipment it replaced . . . register was unequaled. "Finest offset press for its size ever built," say many proud owners.



But, good as it was, the S7L is no match for the new generation of Harris lithographic presses. Advanced design . . . fewer interruptions . . . higher speeds . . . are reasons why the new Harris model 145, for instance, puts more salable sheets in the delivery pile every day.

A new Harris press has the productive get-up-and-go to open up new money-making opportunities. Why not calculate the savings 50% higher running speed might mean in your profit picture?



New Generation

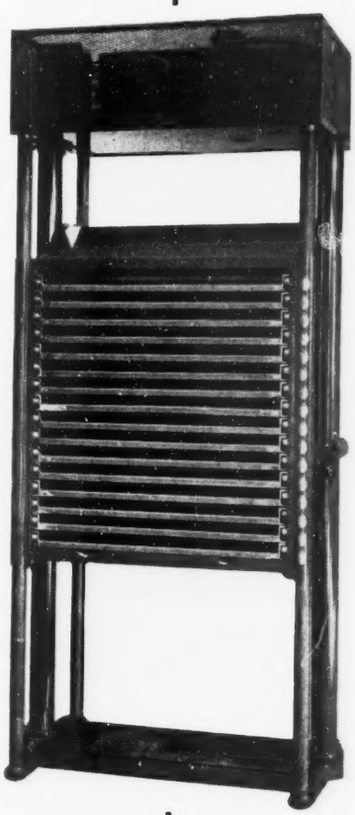
Harris Model 145, Single color 35 x 45" Offset Press
Maximum sheet size 36 x 48"—the most economical size for a 16-page form, either 8½ x 11" or 9 x 12"

HARRIS-SEYBOLD

GENERAL OFFICES, CLEVELAND 5, OHIO

COMPOSING ROOM FOREMEN!

Here's the fast, safe, easy way
to file your page forms...



- The Sta-Hi Power Lift Form File gives you easily accessible "Live Filing" room for 16 full size newspaper page forms, in their chases, in a condensed floor space of only 7 square feet.
- One man can slide a form in or out of the Form File in a matter of seconds.
- Forms are easily and quickly filed or pulled out in one operation – direct from truck to filing shelf, or from shelf to truck. No intermediate "transfer" operation is necessary.
- All forms are handled in or out of the Form File at convenient truck high level –no need to stoop down or reach up.
- One easily operated control lever moves the shelves up or down instantly, to the desired position.
- Form File users all over the country will tell you why this is the one machine to give you time, space and money saving performance in your stereotype-composing room operations . . . Ask us for complete details.

STA-HI

STA-HI CORPORATION • 1020 CROCKER ST. • LOS ANGELES 21

MORRILL'S METERED INK DELIVERY

of NEWSPAPER BLACK and COLOR INKS

gives you the protection of

this PRINTED RECEIPT

PLUS

ACCURACY OF MEASUREMENT

The meters on Morrill tank trucks are calibrated to within 1/40 of 1% (plus or minus) of absolute accuracy. Each meter is officially inspected, approved and sealed by the proper authorities in the city where that particular truck operates.

YOU DON'T PAY FOR AIR

The faucet, which is bolted directly to the meter, combines the high speed, positive closing and non-dripping characteristics so desirable for metered ink delivery. There's no danger of air being drawn into the meter when the truck tank runs dry, as a special air eliminator breaks the siphon.

NO INK SPILLS OR TANK OVERFLOWS

The possibility of ink spills and tank overflows in a newspaper pressroom is virtually eliminated as the meter is set to supply the exact amount required to fill the storage tank. When a few gallons remain to be delivered the decelerator begins to shut off the flow in successive steps so that the last drop is delivered and the valve closed with minimum shock.

You can enjoy the benefits of MORRILL METERED INK DELIVERY at no extra cost.

GEO. H. MORRILL CO.

DIVISION OF SUN CHEMICAL CORPORATION

10TH STREET & 44TH AVENUE • LONG ISLAND CITY 1, NEW YORK

NEW YORK • BOSTON • CHICAGO • DETROIT • MINNEAPOLIS • ST. LOUIS • FORT WORTH
SEATTLE • SAN FRANCISCO • LOS ANGELES • TORONTO, CANADA

WORLD'S LARGEST MANUFACTURER OF NEWSPAPER INKS

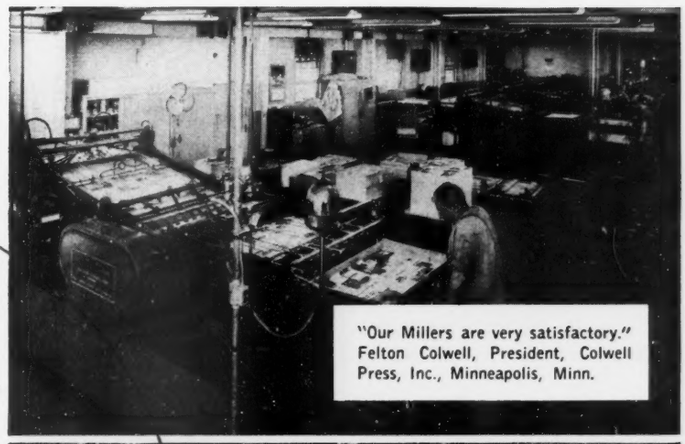
miller

north

east

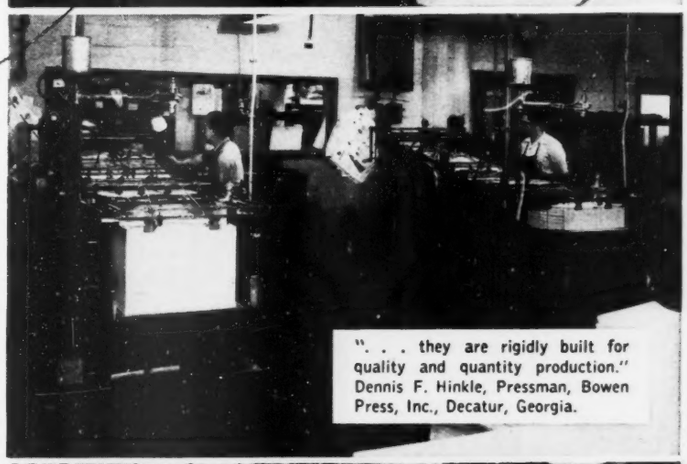
south

west

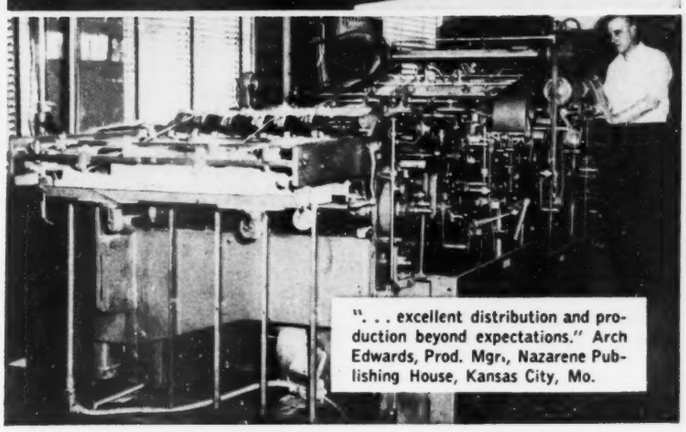


"Our Millers are very satisfactory." Felton Colwell, President, Colwell Press, Inc., Minneapolis, Minn.

"They have been running like a charm. . . ." John E. McQueeny, Pres. and Treas., Strawberry Hill Press, Inc., Long Island City, N. Y.



". . . they are rigidly built for quality and quantity production." Dennis F. Hinkle, Pressman, Bowen Press, Inc., Decatur, Georgia.



". . . excellent distribution and production beyond expectations." Arch Edwards, Prod. Mgr., Nazarene Publishing House, Kansas City, Mo.

. . . men who know Miller presses . . . men who have tried and tested them are outspoken in their praise. For your own satisfaction, see a new Miller press run —talk to its pressman, its owner—learn about its profit-making production—note its space saving compactness—watch its speed—compare its printing quality. We will be pleased to arrange a demonstration.

miller printing machinery co.
pittsburgh pennsylvania

SAM'L BINGHAM'S SON MFG. CO.

16 MODERN FACTORIES SERVING PRINTERS IN 31 STATES

WE ARE NOW MAKING
COMPOSITION ROLLERS
FOR
WINTER USE

SHIP YOUR OLD ROLLERS
TO FACTORY MOST CONVENIENT TO YOU

OVER ONE HUNDRED YEARS OF ROLLER MAKING

FACTORIES

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DALLAS 1
DES MOINES 2
DETROIT 10
HOUSTON 6
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MINNEAPOLIS 15
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OKLAHOMA CITY 6
PITTSBURGH 3
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MAKERS OF RUBBER • NON-MELTABLE • FABRIC-COVERED • ROTOGRAVURE • OFFSET • COMPOSITION • VARNISH-LACQUER • GRAINING **ROLLERS**

PRINTING EQUIPMENT *Engineer*

A TECHNICAL MAGAZINE

OCTOBER
1949

Volume 79 Number 1

Published especially for management, production and mechanical executives responsible for printing production and the specification of equipment and supplies used in the commercial, magazine, private plant and daily newspaper fields.

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Eighth Production Yearbook

A Valuable Reference Book For Mechanical and Production Executives

- Commercial and newspaper printing plant executives will find this encyclopediac volume of constant help.
- Sections on art, photography, photoengraving, electrotypes, duplicate plates, paper, printing processes, binding, mailing, and typography.
- Size, 8½ in. by 11¼ in.; 700 pages with 900 illustrations plus beautiful color inserts by all processes.

$15.50 per copy
Postpaid in U. S. A. only

PRINTING EQUIPMENT Engineer
1276 W. 3rd St. Cleveland 13, O.

Good Folding

★ **In addition to Good Printing as described in the preceding advertisement, the Latest Scott Presses are also notable for Good Folder Operation.**

★ **The 3 to 2 Ratio Scott Folder, i.e. a three-surface folding cylinder with patented expansion bands and a co-acting two-surface cutting cylinder — makes possible the successful handling of all products from a 4-page Tabloid to a 96-page full-size newspaper. No other folder has this wide range of capacity.**

★ **The inside section of a collected product does not protrude beyond the outside section. All other folders are of 2 to 1 Ratio and cut the outside section shorter causing poor appearance of product.**

★ **The patented Safety Gate absolutely prevents more paper from reaching the folding blades and folding rollers than they can safely handle and therefore eliminates break-downs from folder chokes.**

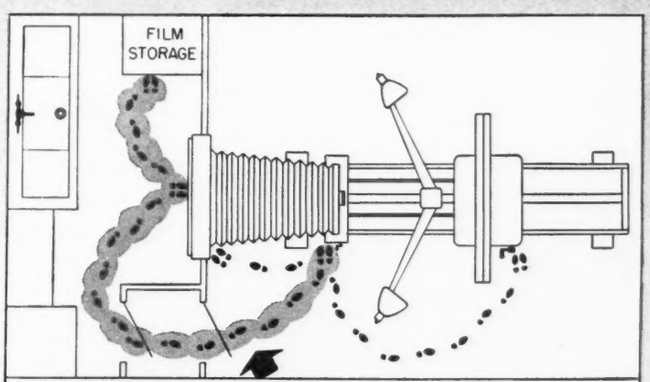
★ **These vital features of Scott Folders, not found in any other Folder, assure Users of Scott Presses of the best Folder Performance and Reliability.**

Send for new catalog of the Scott Press showing the Folder and Color arrangements.

WALTER SCOTT & CO., INC.

PLAINFIELD, N. J.

Footsteps cost Money . . .



SAVE THESE STEPS BETWEEN EACH SHOT BY USING A CHEMCO CAMERA

SAVE TIME . . .
SAVE EFFORT . . .

USE CHEMCO CAMERAS FOR PRECISION NEGATIVE WORK

Why overburden available manpower with unnecessary physical effort? With a Chemco camera the operator works between copy board, lens board and near-by controls until a series of shots are completed. He enters the darkroom only when one or more exposures are made since each negative has been deposited in a light tight box, easily accessible from the darkroom. When desired, a second man may be handling the darkroom work at the same time that the operator is making additional shots . . . the darkroom side of all Chemco cameras is light tight so that even with a strong light in the darkroom, shooting is not delayed. With a Chemco, the operator saves an average of 30 steps per exposure . . . he is not required to enter the darkroom to load and unload film from the camera.

A simple roll film cut-off device separates the actual piece of film being used from the roll of film located within the top of the camera case. These features mean less fatigue for the operator . . . a possibility for more shots per day with less effort.

Two screens may be housed within the camera . . . either may be instantaneously positioned by means of a simple turn of the screen control handle. Both screens may be removed for line shots by returning screens to "storage position."

Take two minutes of your time and write for complete details on how you can save both time and effort through installation of a Chemco camera.

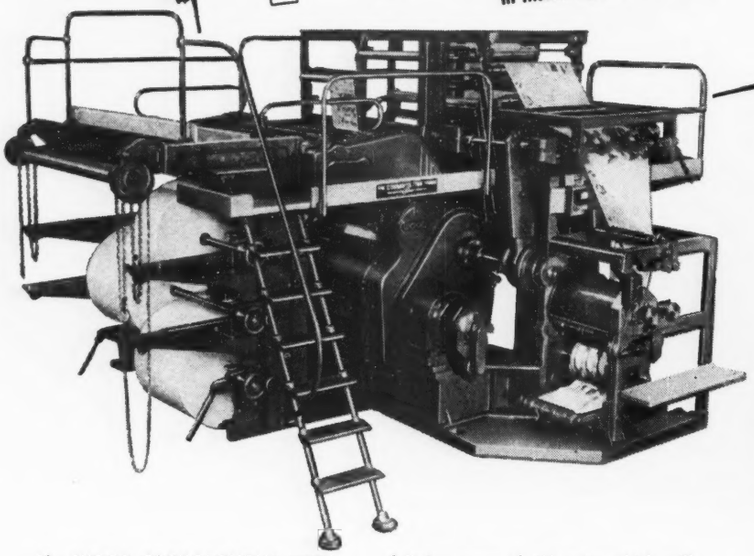
CHEMCO PHOTOPRODUCTS COMPANY, INC.

Factory and General Offices, Glen Cove, N.Y.

Branches: New York, Chicago, Detroit, New Orleans, Boston, Atlanta, Dallas

DOES YOUR SMALLER-CITY NEWSPAPER NEED* THE COSMOPOLITAN PRESS?

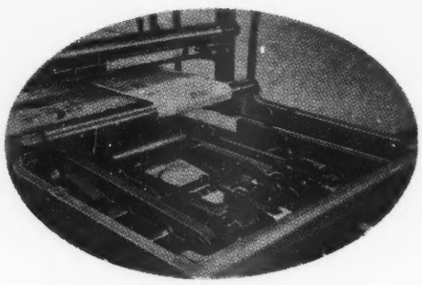
YES	NO	
☐	☐	Would printing from semi-cylindrical, standard size stereotype plates effect definite improvement in the quality of your product?
☐	☐	Do you foresee the value of using color in regular editions when desired?
☐	☐	Is your present equipment slow, cumbersome and expensive to operate and maintain?
☐	☐	Would 2 page jumps in standard size products, or 4 page jumps in tabloid papers, even on collect runs, be of advantage to you?
☐	☐	Does your present equipment place strict limits as to number and type of pages you can produce?
☐	☐	Although your gross revenue from circulation and advertising in 1948 showed an increase over 1940, did high production costs decrease your net profit?
☐	☐	If you are thinking of converting to new rotary equipment, do you hesitate because of the complications, expense, and the "extras" involved in installing the new equipment?



* Your affirmative answer even to one of these questions indicates that your plant can benefit greatly through the use of The WOOD COSMOPOLITAN PRESS. If you've answered "Yes" to two or more questions, *by all means write for complete information . . . . it will pay you well!*

The WOOD COSMOPOLITAN PRESS . . . a full-size press of 1½ units which will deliver standard size newspapers up to 24 pages—in jumps of two—and tabloid size papers up to 48 pages—in jumps of four—counted in lots of 25 or 50. Addition of another unit permits increasing the number of pages. Its folder cuts and delivers standard size newspapers folded to half page size and tabloid papers folded to full page size. A mail folder is also available to fold all products in half.

Installation: Press is erected on its own bedplate for easy, inexpensive installation on any flat, solid floor, and is completely equipped . . . ready for plates, ink and paper!



THE INTRASERTOR — Collect products may now be had with one section containing 2 pages more than the other section. The INTRASERTOR is an integral part of The COSMOPOLITAN PRESS, and "intraserts" a 2-page sheet in one section of a two-part paper when desired, increasing a regular size paper by 2 pages and a tabloid size paper by 4 pages even on collect runs.

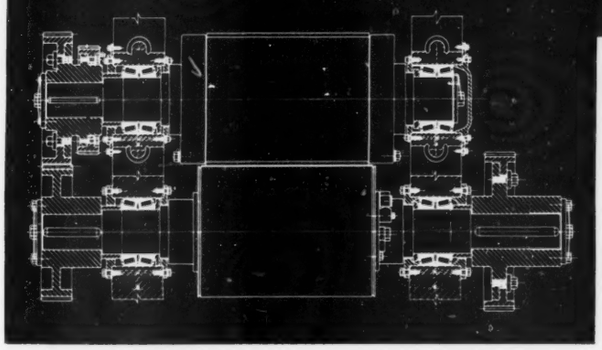
IF IT'S Wood IT'S GOOD

WOOD NEWSPAPER MACHINERY CORPORATION

PLAINFIELD, NEW JERSEY • SALES OFFICE: 501 FIFTH AVENUE, NEW YORK 17

headlining

Goss Headliner equipped with Timken bearings.



Application of Timken bearings on plate and impression cylinder shafts.

The Goss Headliner is making news these days in some of America's largest newspapers. It's one of the most talked of presses in the field of the whirling webs, combining as it does to such a great degree, the three most necessary qualities in a modern newspaper press—speed, precision, economy.

To help assure these qualities, the Goss Printing Press Company follows a formula it has used for years; this calls for the use of Timken tapered roller bearings on plate and impression cylinder shafts and at other important positions. It means faster, smoother operation and better printing with friction eliminated; wear kept to a minimum; moving parts held in constant alignment; radial, thrust and combined loads carried with a wide margin of safety. No matter what type of printing presses you build or buy make sure they are equipped with Timken bearings.
Look for the trade-mark "TIMKEN" on every bearing.

THE TIMKEN ROLLER BEARING COMPANY
CANTON 6, OHIO
Cable Address "TIMROSCO"

TIMKEN 50 YEARS

TIMKEN
TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◎ AND THRUST →◎← LOADS OR ANY COMBINATION →✳←

THE CHRISTIAN SCIENCE MONITOR

AN INTERNATIONAL DAILY NEWSPAPER

expands color-printing facilities

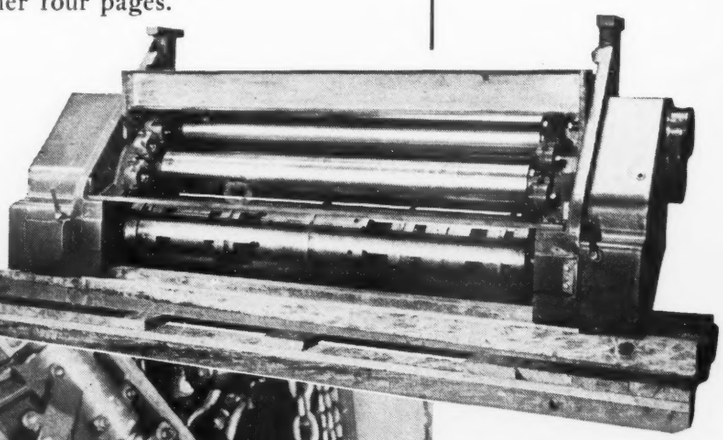
In 1947 The Monitor installed a ten-unit, two-folder, Hoe Color-Convertible Newspaper Press equipped to run as two presses printing 40 all black pages; or to produce 32 black pages with four pages in one or two extra colors; or 24 black pages with four pages in three extra colors.

Recently additional color cylinders have been added, at an investment cost of only 5% of the initial installation expense materially expanding the color-printing capacity of the press without sacrificing page capacity.

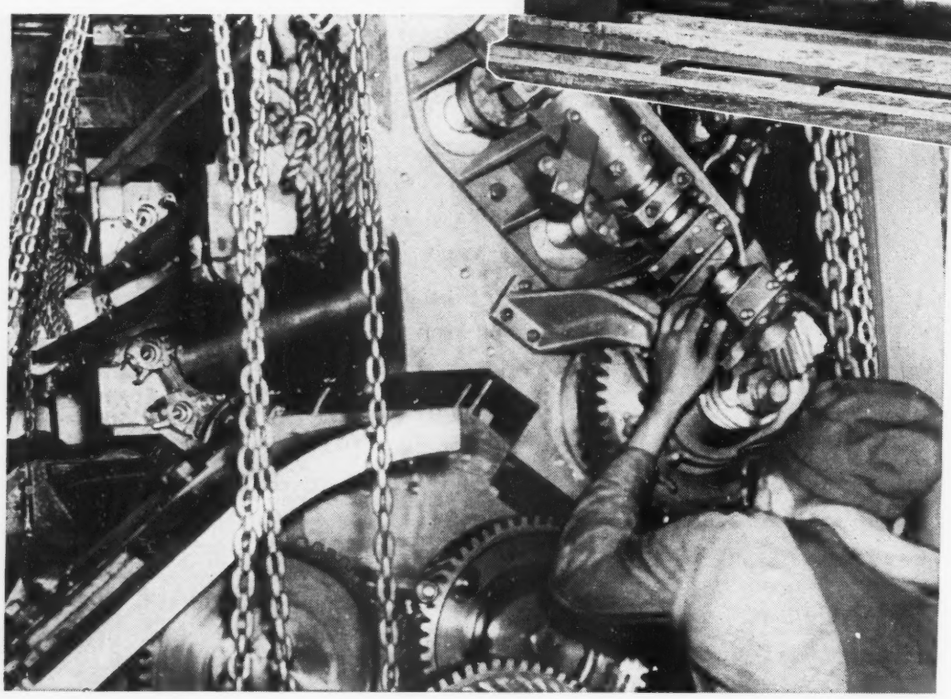
Now 40 pages can be printed with one extra color on four pages; or 32 pages with three extra colors on four pages; or 24 pages with three extra colors on four pages and one or two extra colors on another four pages.

Eight days from factory to actual production

So easy is it to add such additional color-printing equipment that in only *eight days* from the time one of the new color cylinders was shipped from the factory in New York, it was installed and used in printing an edition of THE CHRISTIAN SCIENCE MONITOR'S week-end color supplement.



Color cylinder is shipped from Hoe's New York plant as a complete unit —



and is installed in The Monitor press as a complete unit.

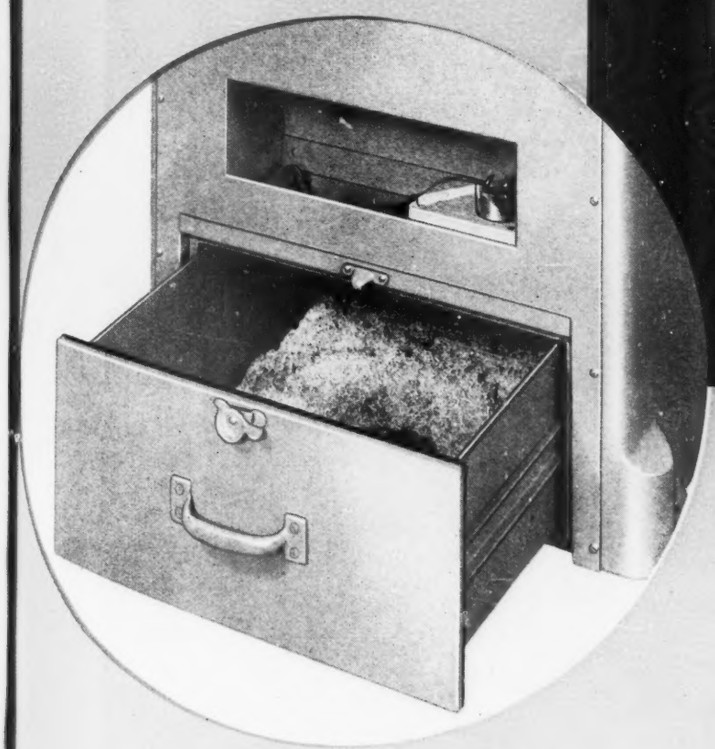
R. HOE & CO., INC.

910 East 138th Street New York 54, N. Y.

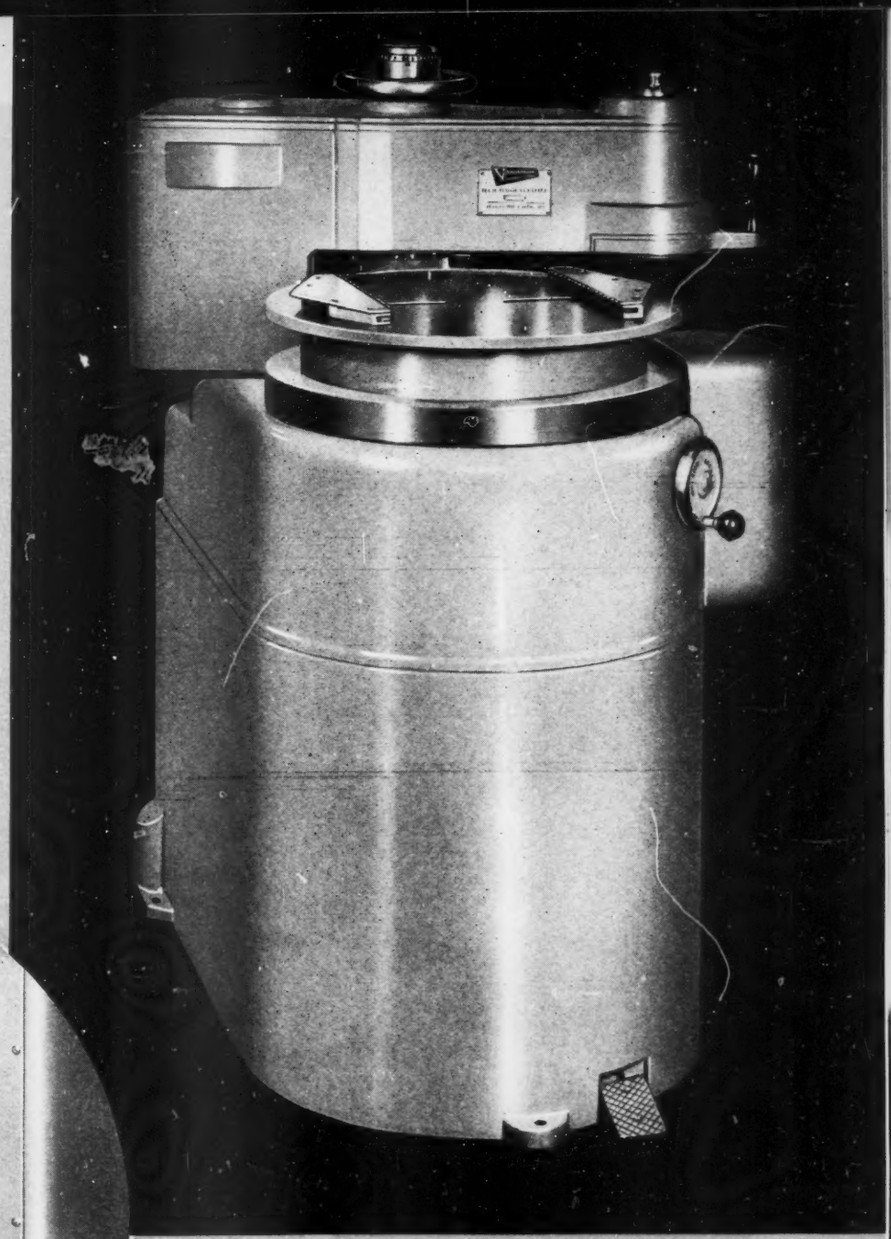
BRANCHES: BOSTON • CHICAGO • SAN FRANCISCO

No. 11
VANDERCOOK BLOCK LEVELLER

A new and extra heavy precision tool, that will accurately plane wood, lead alloy, aluminum, magnesium and plastic mounting materials. A descriptive circular giving full details will be mailed upon request.



Standard equipment includes vacuum exhaust system with cyclone separator in base of machine for removing metal and wood shavings into a steel drawer.



6 IMPORTANT FEATURES

- *Planing time, maximum sized block (12"x18"), 7 seconds.*
- *For permanent accuracy, table is supported by ball bearing 14½" in diameter.*
- *Quick acting plate clamps operated by hand wheel, designed to (1) correct warped mounting material with neutral clamping, then (2) exert a down pull for planing the reverse side.*
- *Depressing foot pedal releases (1) table brake, (2) disengages clamping wheel, (3) starts cutter and table motors.*
- *Cutter head raised or lowered to desired thickness by convenient hand wheel; eye level indicator graduated in .001" shows depth of cut.*
- *Cutters are inexpensive and easy to regrind.*

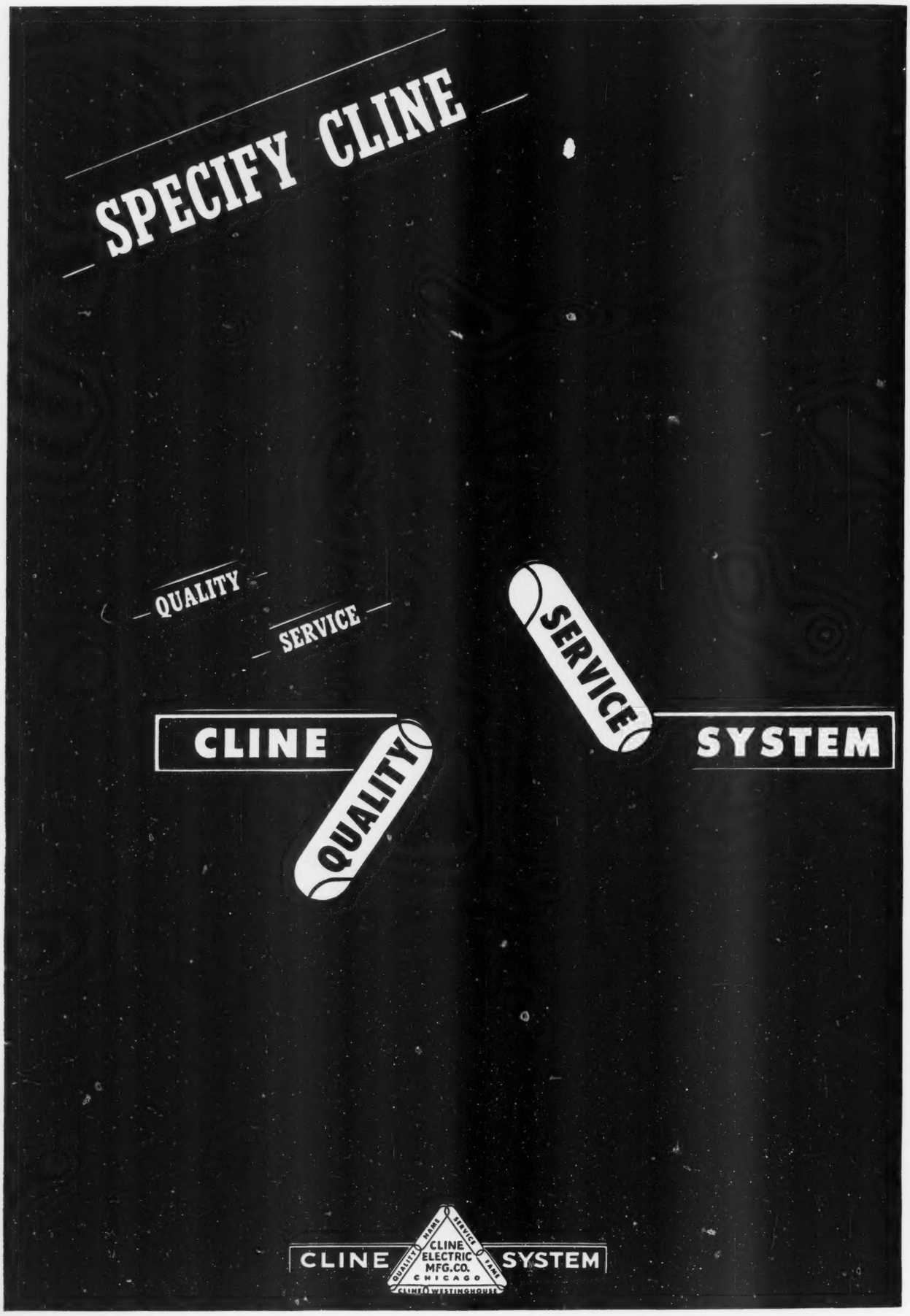
VANDERCOOK PRE-PRESS SYSTEM – CUTS COSTS!

VANDERCOOK & SONS, INC.

Main Office and Plant:
900 N. Kilpatrick Avenue, Chicago 51, Illinois

Eastern Branch
216 East 45th St., New York 17, N.Y.

Western Branch
1151 S. Broadway, Los Angeles 15, Calif.


SPECIFY CLINE
QUALITY
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QUALITY
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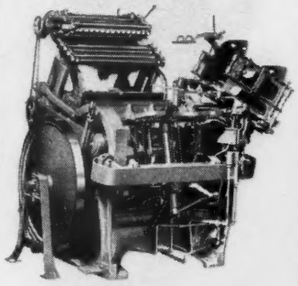
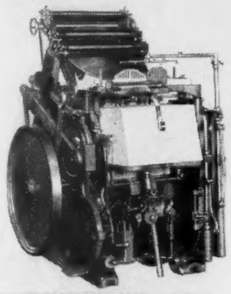
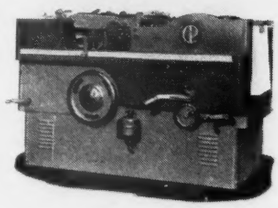
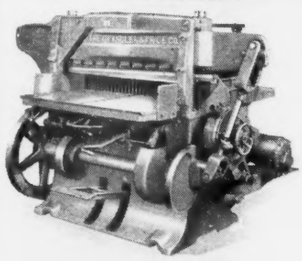
SYSTEM
CLINE
CLINE ELECTRIC MFG. CO. CHICAGO
SYSTEM

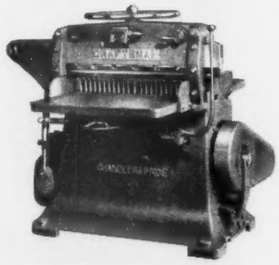
Protect Your Profits with Chandler & Price Equipment

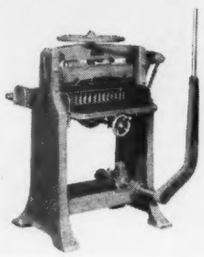


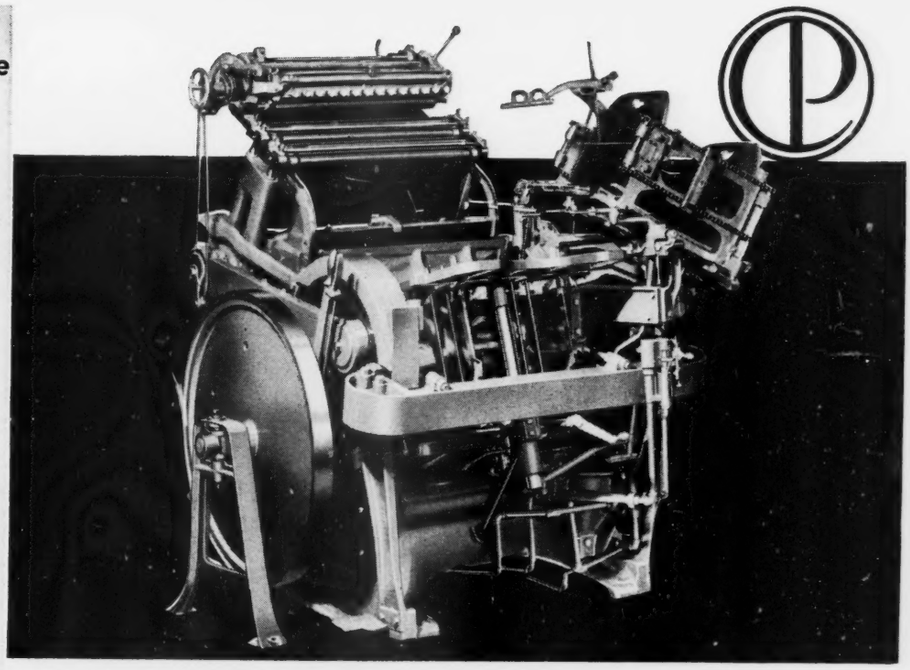












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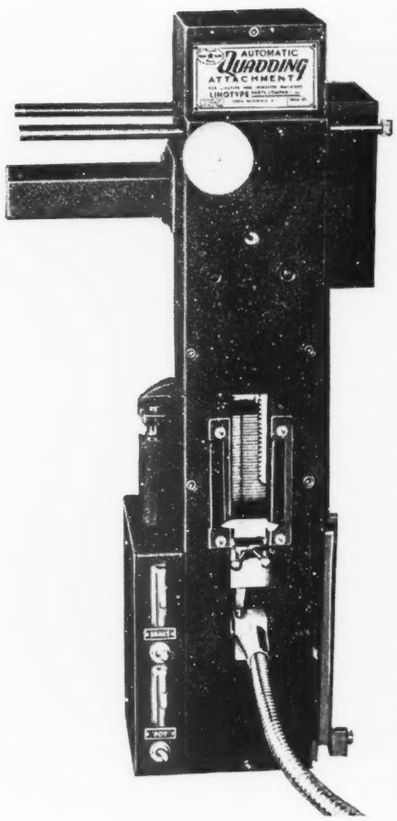

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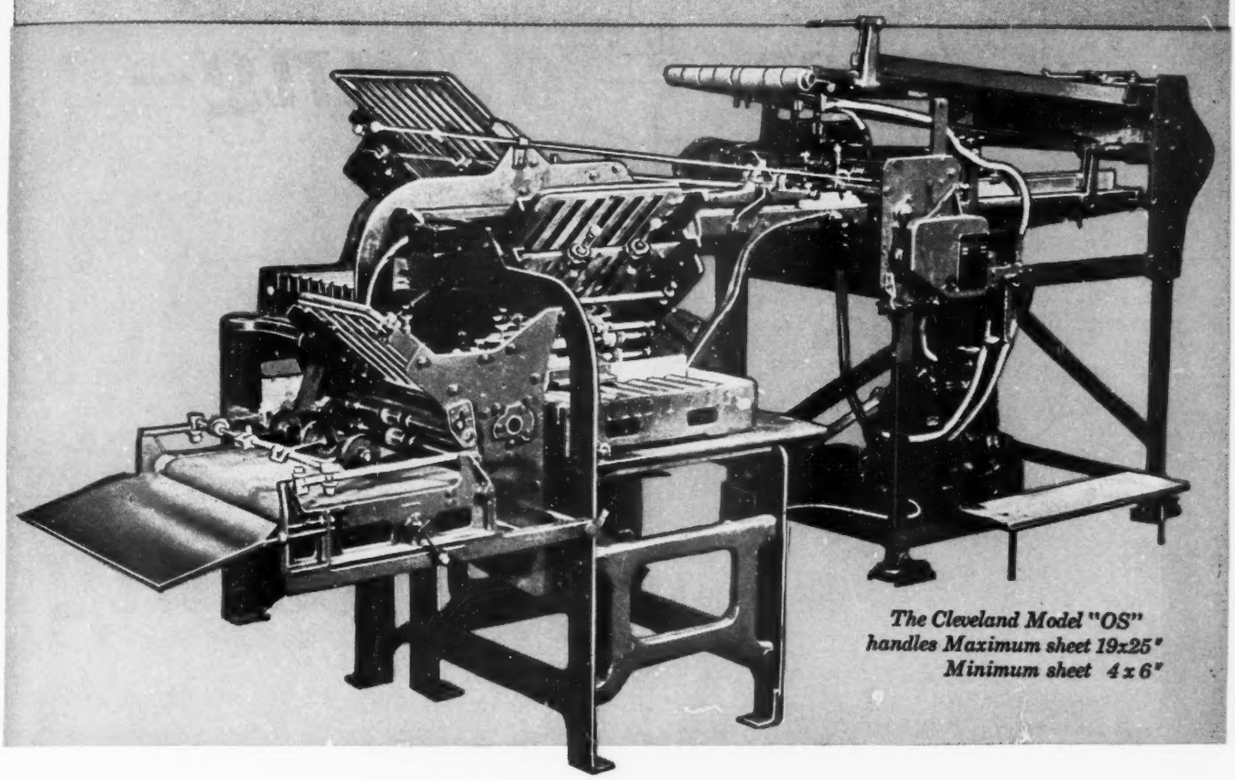

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Minimum sheet 4x6"

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This new folder has a range of flat sheet sizes from 4 x 6" up to 19 x 25". It will deliver the same good service and high speed—and has the same productive capacity as the larger Clevelands. Convenient adjustments adapt it to the quick changing required to handle short run work economically.

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The complete line of Cleveland Folders includes *seven* models, one or more of which will bring new production economies to your plant.

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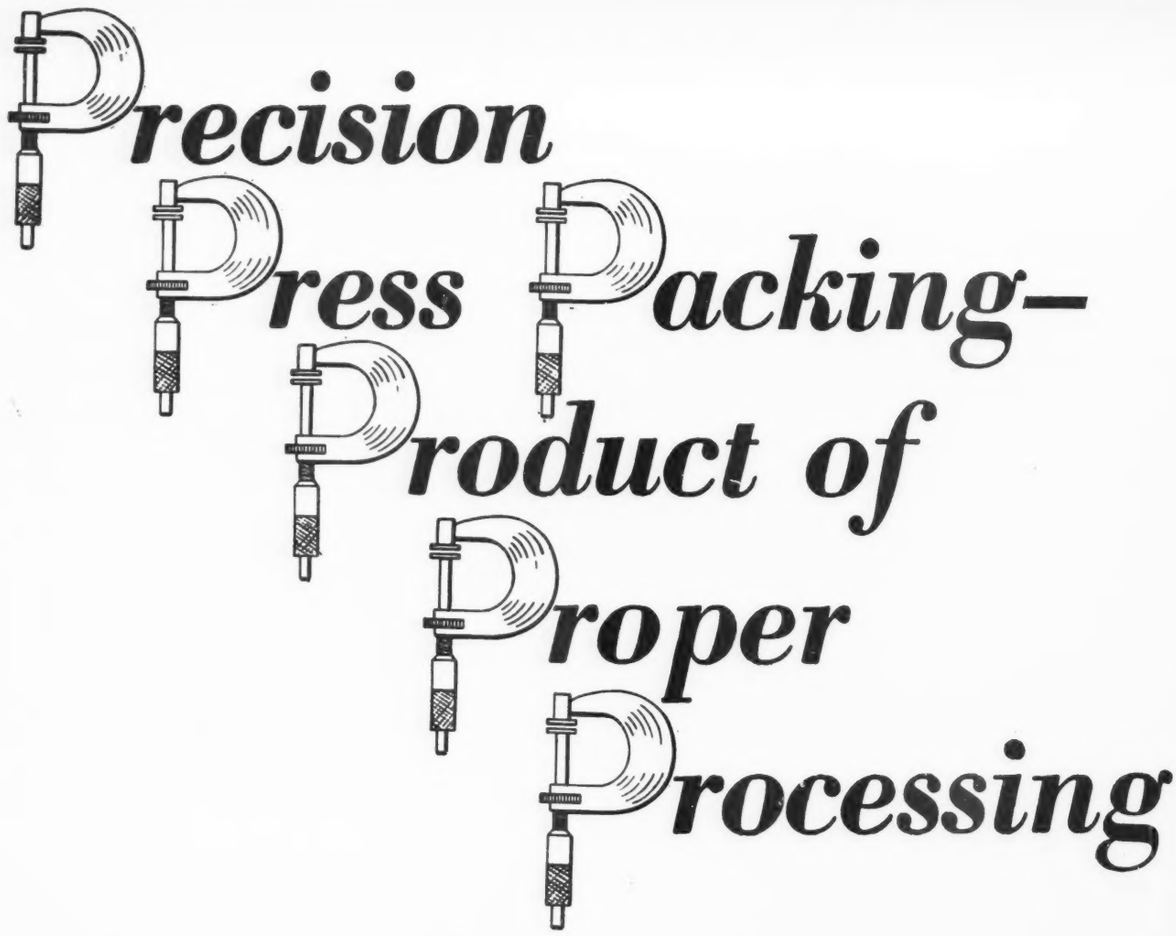

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TOP

This drawsheet is firm, durable, economical and long-lived.

IMPROVED SATISFACTION

Coated with "Calvaprene" by du Pont, on a fabric which has been impregnated with "Neoprene."

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An old favorite for flatbed presses. Skivered metallic surface accepts excess ink and flakes it off without smudging.

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Available in your gauge and size with synthetic rubber coating.

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A synthetic, laminated top blanket, extremely durable and a clean printer.

TINGUE UNDERBLANKETS

CUSHION CORK BLANKETS*

Highly resilient and recommended as the underpacking for "Combino" and Tingue coated Felt or in combination with Foundation Blanket where a drawsheet is used.

FOUNDATION BLANKET

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From the Press Manufacturer, a message *On the next page*

ATF CHIEFS

THE ATF CHIEFS do beautiful work. The previous page is striking evidence. But for how and why they do it—easily and consistently—you look to their sturdy, rugged construction, precision engineering, and simplified adjustments and controls.

No type of offset work within their size range is beyond the ability of an ATF CHIEF to handle efficiently. Available in three sizes, 80% of the offset jobs in any commercial shop can be done on ATF CHIEFS.

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Largest sheet size: 22½"x29" Smallest sheet size: 11"x17"

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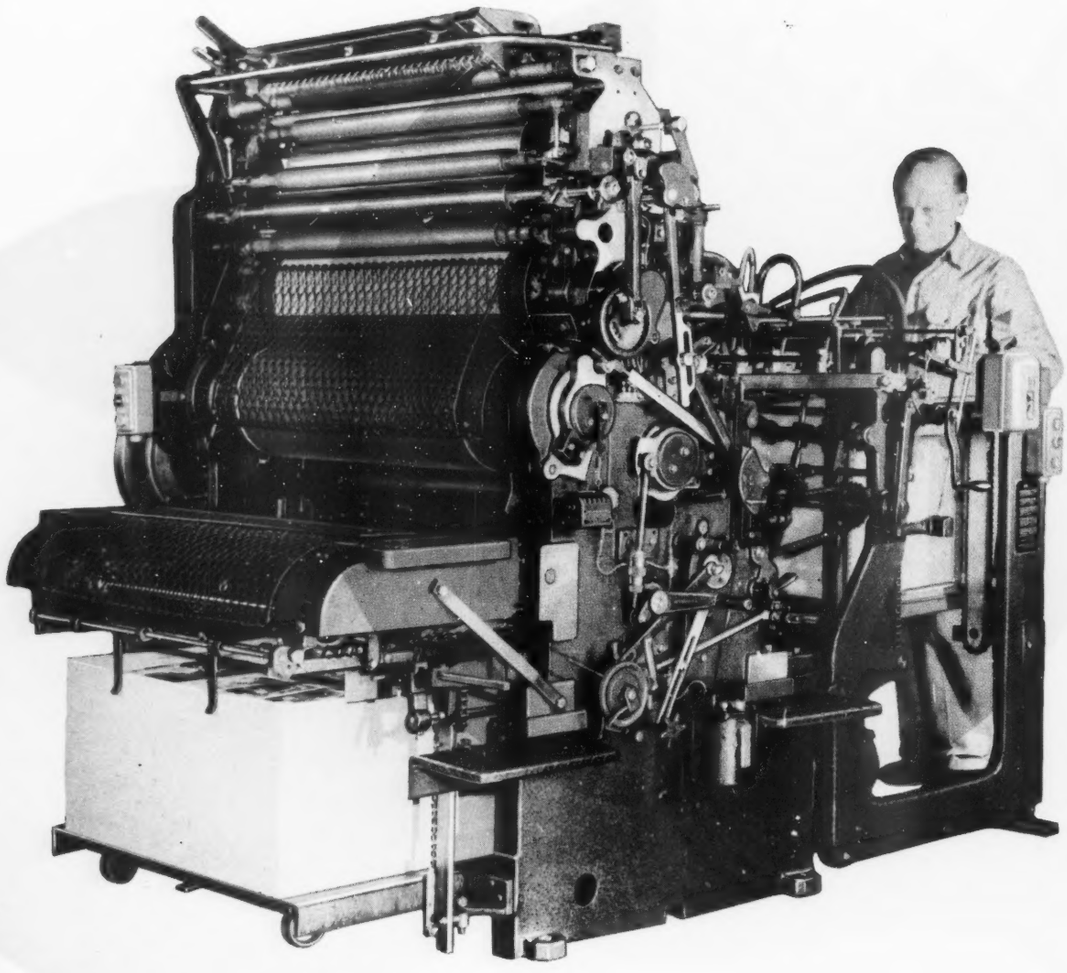

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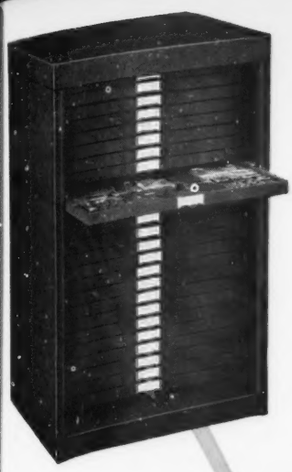

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25 drawers for full protection of valuable halftones and electros. Drawers operate on extended runners for full view of entire contents without fear of having drawer fall when opened.

FOSTER-BUILT GALLEY CABINETS
Are manufactured in 11 standard sizes and styles for prompt delivery at below present day market prices. Can be purchased with or without working top.

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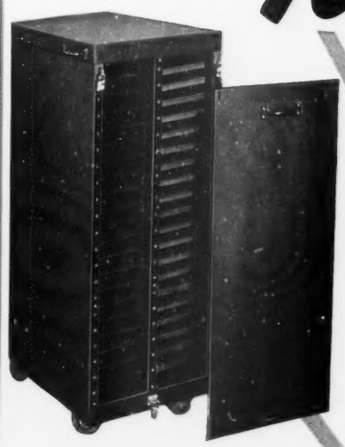

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For movement throughout your plant or for inter-city and long distance transportation of your galley forms. All sizes available, with or without locking doors. Write for prices.

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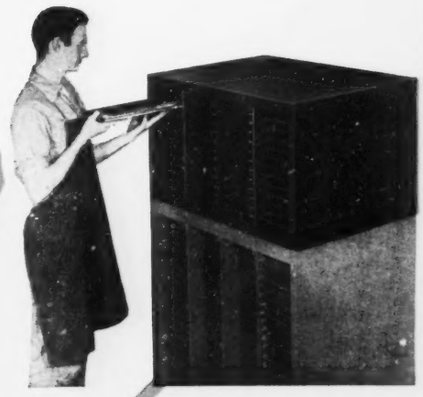

FOSTER'S FORTY-EIGHTER GALLEY CABINET Fits on top of all standard cabinets . . . and no towering giant either. This practical unit accommodates 48 additional galleys — Rent Free without utilizing any valuable floor space.

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Eleven drawers operating on extended runners. Finished in olive green or smart crackle gray, this unit has what you want in the way of protection, economy, and value.

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DESIGNERS AND BUILDERS OF COMPOSING ROOM EQUIPMENT
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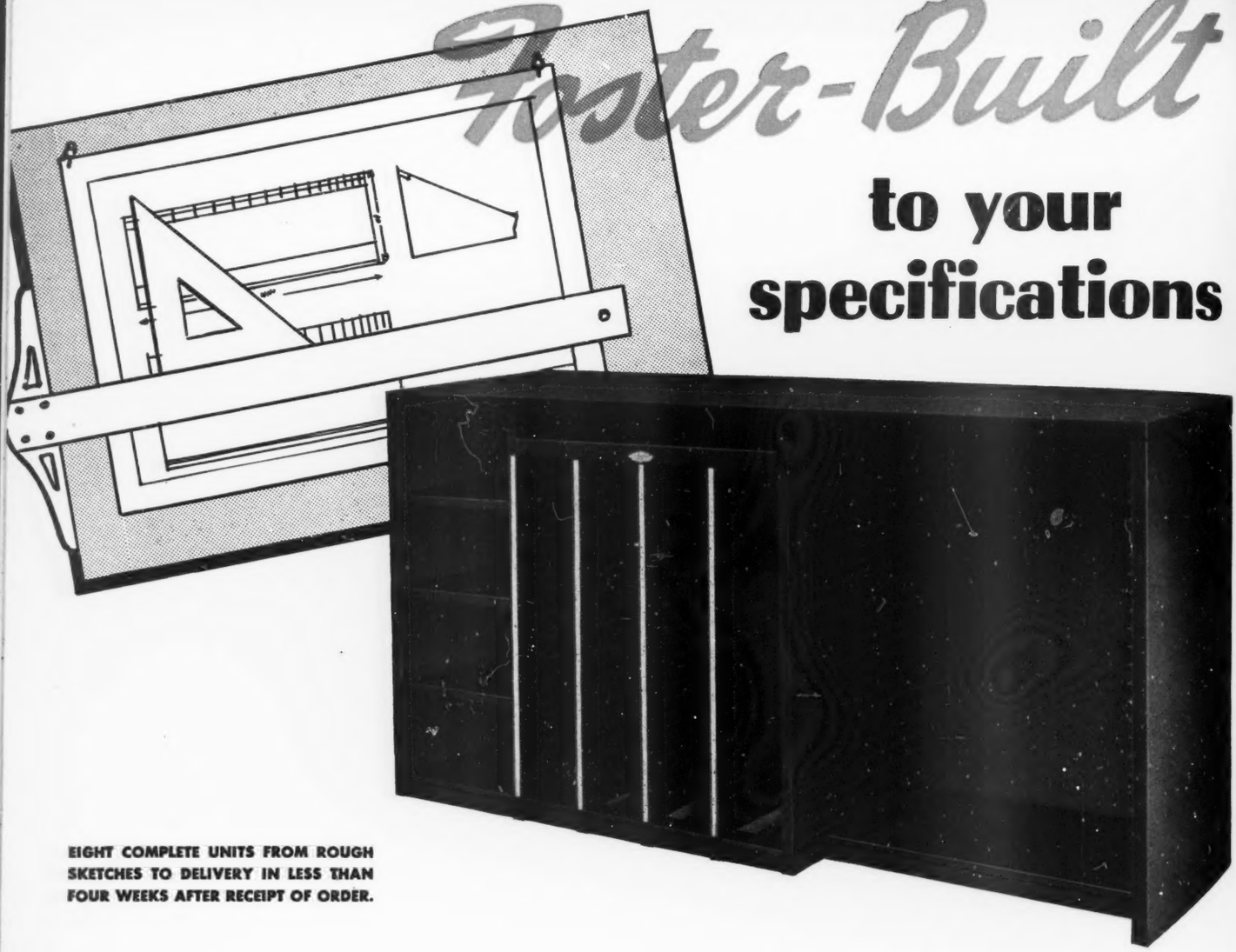
to your specifications



EIGHT COMPLETE UNITS FROM ROUGH SKETCHES TO DELIVERY IN LESS THAN FOUR WEEKS AFTER RECEIPT OF ORDER.

A Foster-Built Cabinet or a complete composing room manufactured to your specifications is no problem for our designers or manufacturing facilities. It only takes your sketch of tentative plans and a short letter giving some details which you would like incorporated. You will receive by return mail a penciled prospective of our conception and suggestions. Delivery date and quotations will be furnished at the same time.

The unit pictured was manufactured with left and right handed cases. 100 galley runs for double column galleys were conveniently placed in the center with 4 spacious storage bins on the opposite end of the unit. Special sloping working tops (not shown) provide enough space for six double column galleys laid end to end. A center bar half way on the working top slope is removable to accommodate larger galleys. Each cabinet measures 7' long, 43½" high, and 24" wide. These units were so designed that when placed end to end, 14 continuous feet would be available for make-up use.

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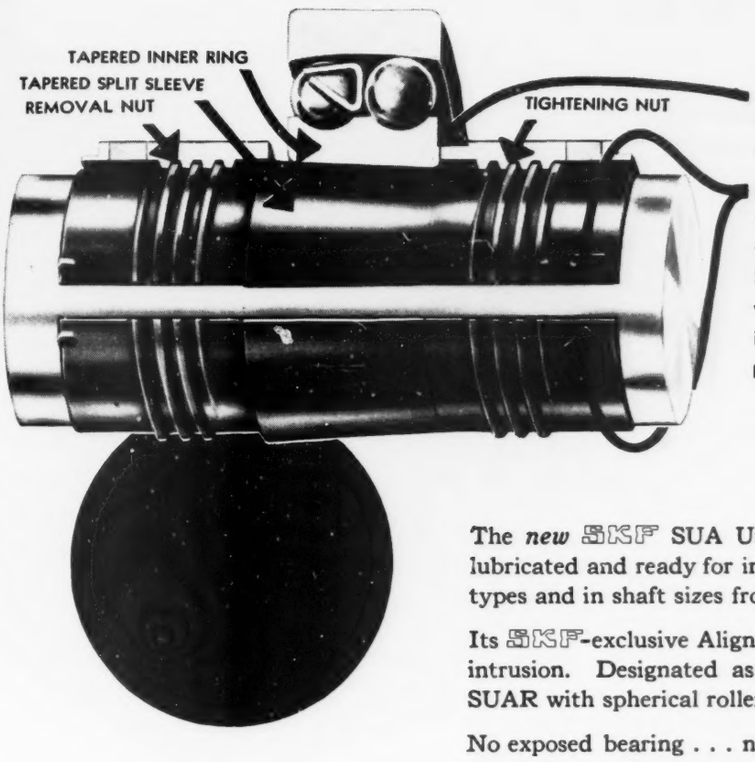
SOMETHING NEW!

SKF

a tight fit
between bearing and shaft

Here's How It Works



TIGHT FIT results when the tightening nut pushes the tapered inner ring over the tapered split sleeve.

CONCENTRIC GRIP is firm and positive—as the split sleeve contracts and wraps around the shaft. Removal is accomplished by reversing the process—with tightening nut loosened, removal nut pushes inner ring off the sleeve.

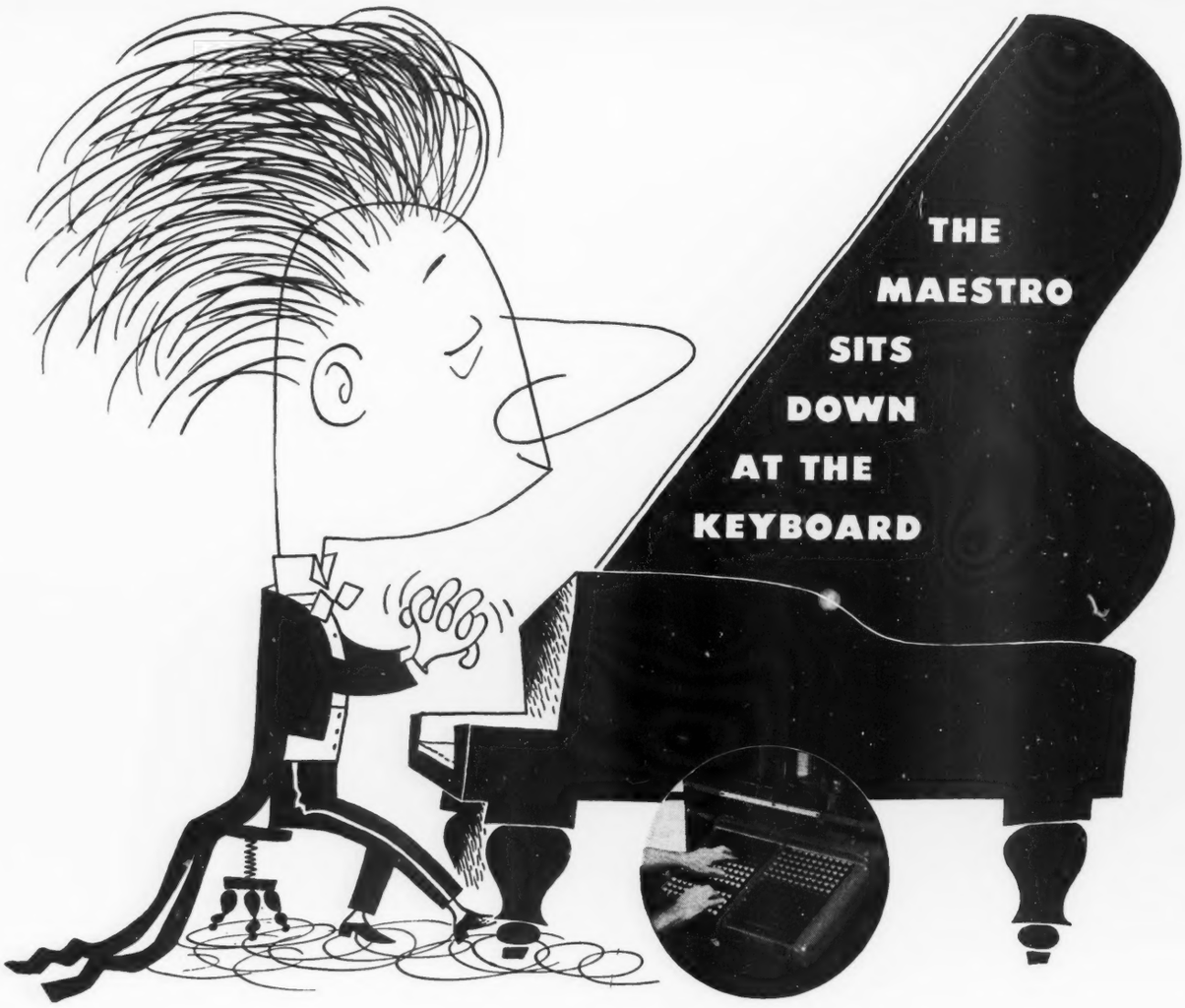
The *new* SKF SUA Unit Pillow Block is completely assembled, lubricated and ready for immediate use. Available in "free" or "held" types and in shaft sizes from 1 7/16" to 2 7/16".

Its SKF-exclusive Align-O-Seals prevent lubricant leakage and dirt intrusion. Designated as type SUA with ball bearings—and type SUAR with spherical roller bearings.

No exposed bearing . . . no lock screws to raise troublesome burrs on the shaft . . . the nut is locked to the sleeve . . . and even though the shaft vibrates, the concentric grip will not loosen.

For more information, check your local authorized SKF Distributor, or write: SKF Industries, Inc., Philadelphia 32, Pa. 6681

Bearings and pillow blocks engineered by **SKF**



Before him stretch the keys of the instrument waiting for his touch. The years of study and practice will flow through those deft fingers—move them swiftly over those responsive keys—and the resultant harmony will be recorded to delight the ears of millions.

He has no thought of running out of notes. He will never have to stop in the middle of an intricate passage to distribute his "A"s and "B"s and "E"s so that he can use them again. No matter how many hundred times he uses one note in a long and involved score he knows that the next time his finger tip selects that note it will give the same fresh, perfect sound it gave before.

Other deft and experienced fingers play harmonies for the millions on other keyboards. Like the pianist, the keyboard operator on the Monotype machine is free to play his instrument as expertly as his training provides. As fast or as slow as his ability sets the pace, his performance is continuous—never interrupted by the need to distribute type or matrix for re-use. With the world of type at his command, he can give free rein to the selection, judgment, spacing and emphasis for which he is trained.

The Monotype principle of Non-Distribution means no distribution at any time. This and many other advantages of Monotype are interestingly explained in a booklet which we will be glad to send you on request.

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A WORD ABOUT THE TYPE—Display, 14 point 20th Century Ultra Bold No. 609. Text, 11 point 20th Century Medium No. 605J. Signature, 10 point 20th Century Extra Bold No. 603J.

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Another New Press

25,000-30,000 papers per hour.

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Additional units may be added at any time without disturbing original installation.

Compact in size.

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All working parts fully guarded.

Economical tubular press operation—one plate per page—two page steps to full capacity.

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a flexible tubular decker type press in the 25,000-per-hour class

Now—Goss fills in the most complete line ever built, adding a new press between the flat-beds and the Unitubular . . . the Goss Dek-A-Tube, designed for the average daily in the medium-size group. Flexibility of unit arrangement provides for any number of units up to 48-page capacity with color, as required. Ask now for full details on this new Goss press.

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REDUCES ERRORS IN RAILROADED NEWS

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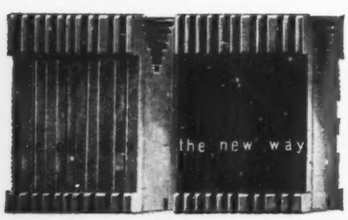
Editors and publishers agree that nothing is so aggravating as typographical errors in the columns of their newspapers. A simple, economical way to reduce these errors is the use of Matrix Contrast Service on line composing machines. In fact, among hundreds of newspaper publishers surveyed, the consensus was that Matrix Contrast Service reduces errors at least one-third, increases production and enables them to railroad news in emergencies and still have a clean looking paper.



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Matrix Contrast Service

Music—

How It Is Printed

Zinc Plate—I.
Music Type—II.
Musicktype—II.
Typemusic—IV.

By DR. R. R. VOORHEES

I.

MUSIC, possibly best described as the "art of sound" goes back to the beginning of the human race. There very definitely has been music in the world as long as there have been human beings in the world. The emotions of man produced music and through the ages these emotions have continued to produce music that has changed and grown as man's emotions have changed and grown.

Advancements that have been made in printing music have been slow and in many instances have lagged behind advancements made in the printing of literature. But what the printing of music lacks in rapidity of progress through the ages it more than makes up in interesting detail.

Our main concern, however, in writing about the reproduction of music is to explain the principal methods in use at the present time. The history of the reproduction of music is a story in itself, but will not be discussed in this article. In order will be discussed music printing by zinc plates and offset; by music composed from music type, electroplating and letterpress; by Musicktype which is a photographic reproduction process from which a plate can be made to be printed either by letterpress or offset, and by the Typemusic process (in which a typewriter-like machine is used to produce the photographic copy and from which the usual procedure is to make an offset printing plate.

Zinc Plate Method

THE change that took place in the 18th century when copperplate engraving was superceded by pewter plates on which the music to be printed was impressed in the plate by means of punches of various types for the different notes, rests and so on, resulted in a method of music reproduction that continues to this day with slight refinements. This method is used largely with only the actual printing of the music being changed by the birth of offset printing. Let us look with some detail at this method.

Generally, a plate of a composition of lead, tin and zinc is used for the making of the music plates. However, during the late war and since, because of the tin situation, these plates have been mostly made of lead which has not proven entirely satisfactory. The lead is a bit too soft to make a satisfactory plate but in the absence of the alloy plates, lead plates are being used. Let us visit the plant of the H. A. Stuckmann Music Press at 4737 No. Broadway, Chicago, Ill., and see how these plates are made.

Plate Stock

The plates are approximately 1/32 in. thick and come in various sizes with both sides polished. It depends on the kind of music plate being made as to what size plate is used. For the well known popular music which has a trim size of 9 in. by 12 in., a plate measuring 8 in. by 11 in. is used. For orchestra work, a plate measuring 6½ in. by 9½ in. is used, although some music platemakers use a 9 in. by 12 in. plate for orchestra work, getting the parts for two instruments on the same plate and cutting the printed job in two when it is finished.

In order to make it easier to see the indication marks on the polished plate that are laid on it by means of dividers, the plate is surfaced a bit with very fine sandpaper, the strokes being a 45 deg. angle.

Marking Off the Plate

The first step before actual work can start on the plate, is the marking off of the music Ms. into lines and pages so as to know in advance how many pages will be required to take care of the entire Ms. It must be remembered that the music Ms. is hand done and in almost every case, is very crude. No attempt, whatever, is made to draw out the notes and a person unfamiliar with Ms. music even though a proficient pianist will find Ms. music very difficult to read and play.

Scribing the Staves

When the music Ms. has been marked off into lines and pages, then actual work starts on the metal plate. The first step is to mark off the lines on the plate by means of dividers. The dividers make a pin point mark that can be seen by the platemaker as he lays down the lines forming the staves. With the number of lines marked off, the next step is to scribe the lines that form the staves. This is done with a five-pronged tool known as a liner with sharp points on each of the five prongs. The prongs are spaced the same distance apart as are the lines of a staff.

With dividers, side lines are marked down each side of the plate to indicate where each line of music will start and where it will end. This done, a T square is laid across the plate and the liner is used to cut into the plate the five lines that will form the first staff of the first line of music. These lines start at the margin line on the left side of the plate and run to the margin line on the right side of the plate. To get depth to these lines, the liner is passed over two or three times with the T square forming an immovable guide against which the liner is drawn. With a fair depth to the five lines obtained, the T square is removed and the liner is again passed over the same place two or three times more in free-hand manner to insure greater depth to the lines. For these last strokes the use of the T square is not necessary since there is sufficient depth to the lines to form a sort of rut into which the five prongs of the liner can travel. With one set of five lines completed, thus forming one staff, the process is repeated for the rest of the staves on the page until the entire plate has been scored for staff lines.

The scoring of the plate for the staff lines which actually cuts into the plate also raises burrs of metal along the edges of the lines. These would interfere with accurate work on the rest of the plate. So after the plate has been cut for staff lines it is sandpapered with fine sandpaper at a 45 deg. angle stroke to remove these burrs.

Spacing and Engraving Measures

On single-line music, as for instance, orchestra parts, the spacing of the lines into measures is done by the eye. However, in piano music as well as four-part and other kinds of music where there is more than a single line of notes, the spacing of each line into measures is done by measurement. This is made necessary because of the fact that notes located in the two or more lines of music must be struck or sung at times that bear a fixed relationship to each other which necessitates accurate spacing of the notes. In the case of single-line music the process of laying down the notes, rests and so on, goes on the same as with other music except that it is done by the eye without measurement.

In the case of piano music, four-part harmony and music with more than a single line, the next step after the staves have been cut into the plate is to mark off each line into measures so that all of the notes and rests that go into that measure can be accommodated and also

Making a Zinc Music Plate—A number of the mechanical operations involved in preparing a page music plate are illustrated in these pictures. The zinc alloy plate is of a ductile nature and is worked upon to produce an intaglio image by a combination of engraving and punching.

1. The engraver is scribing the lines across the plate with a liner. The liner is a five-pronged tool with a sharp point on each of the five prongs. The prongs are spaced the same distance apart as are the lines of a staff. The liner is guided across the plate by a T square. To get depth, the engraver draws the liner over the staff lines a number of times. The process is repeated on the plate until all staves have been engraved the proper depth.

2. After the measures have been marked off, bar lines are cut into the plate by the engraver. For this purpose the engraver uses a strong single-pointed tool. This is called the bar hook. To guide the cutting operation, the engraver draws the bar hook at right angles to the staff lines. He guides the bar hook by passing it along one edge of the T square blade. Several passes of the bar hook are necessary to get sufficient depth in the plate to hold enough ink to produce satisfactory proof.

3. Most of the other operations necessary to "engrave" the music plate are done with dies. The dies really are hard tool steel punches with the character on one end. The shank of the die is approx. 3 in. length. There are about 52 characters in a full set of dies. Separate dies are provided for treble, bass and the various cleffs; dies for sharps. flats and naturals; whole, half and quarter notes, and some of the accents used in music.

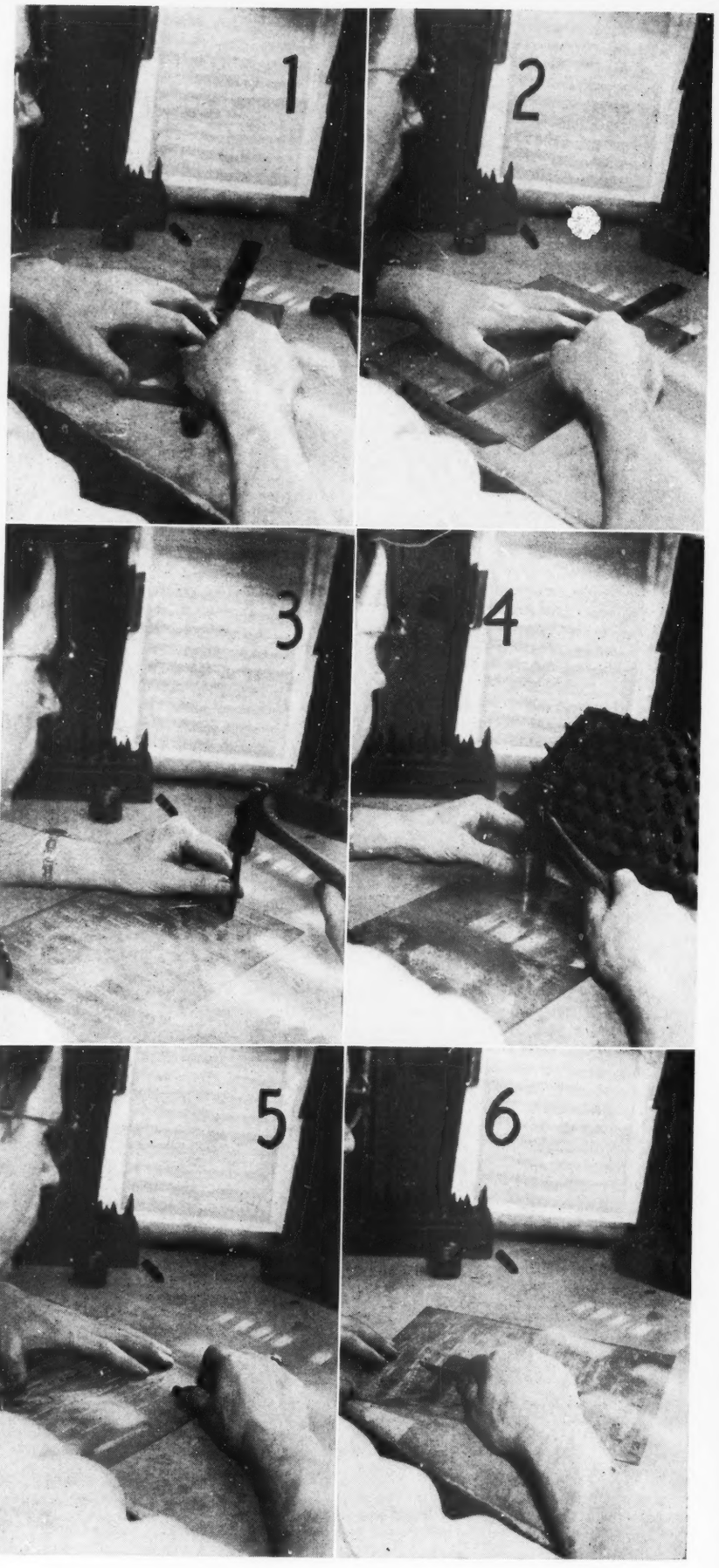
4. From time to time during the punching-in operations with the various dies, it is necessary for the engraver to stop punching operations and flatten out the plate. He turns the plate over, face down upon the bench. To flatten the distortions in the plate, he uses a round steel tool called a flattener. The flattener is 1½ in. diam. and about 2 in. high. The engraver hammers the flattener gently to restore the original flat condition of the plate. The plate is then turned face up and the flattener is struck repeatedly as necessary to further restore the all-over level condition of the plate. The engraver's bench is covered either with a litho stone or a fairly thick steel plate.

5. As has been explained above, the engraver punches in the plate the notes or parts of notes for which he has dies. He adds the stems where necessary by means of a tool called the graver. The stems are cut for half and quarter notes. For the eighth, sixteenth, thirty-second notes and so on, he adds the flag or "tail" after the stem has been cut into the plate. He does this with a die or punch. These dies are provided with single and double flags, extending either up or down. Notes with three or four flags are punched with two punches.

6. In the case of a long, slightly curved line indicating a tie or a slur, or two rather long lines that converge or diverge, indicating either to reduce volume or increase volume respectively, these are cut into the plate with the hand graver mentioned in paragraph 5. Accidentals are next punched into the plate by a die carrying the proper character.

Next in order is the punching in of the words to the music. This is done by punching each letter one at a time with single-character letter punches.

The plate now receives its final flattening and is ready to be proofed.



so that they will come in the proper position in relationship to the notes in the accompanying staff which must be played or sung simultaneously. This entails accurate spacing with some of the measures being longer than others depending on the number of notes in the measures. Further than that, it is often necessary to space the measures according to the text that is to be added under the music. For instance text with extra long words will take more space than text with short words so that regardless of the number of notes space must be allowed. Any dull pointed instrument is used to mark off the lines or staves to show where the different notes come. The idea of the dull pointed instrument is to mark the plate but not cut into it. These lines simply form guide lines for the later operation of punching in the notes, rests and so on.

The actual marking off of the measures, that is, the addition of the bar lines is done with a strong single pointed tool called the bar hook. With the aid of a T square this bar hook is run downward on the place across the five lines to cut into the metal what are known as bar lines. Like the scoring of the lines forming the staves, these bar lines are cut two or three times with the aid of the T square and then two or three times free-hand to obtain sufficient depth. And as in the case with the laying down of the lines forming the staves, the plate is sandpapered to remove the burrs.

Punches or Dies

For most of the other operations necessary to produce a music plate the work is done with dies of which there are about 52 characters in a full set. These dies are hard tool steel with a single character on one end. They measure about 3 in. long and are slender. There are separate dies for the various cleffs such as treble, bass and so on. There are dies for sharps, flats, naturals, whole notes, half-notes, quarter-notes and some of the accents used in music, as for instance the star-like sign used to denote pedal and so on. Since there are no dies for eighth, sixteenth and thirty-second notes and since the quarter and half-note dies do not have stems on them these stems must be added later in a way that will be presently explained. The flags on eighth, sixteenth and thirty-second notes are also added by means of another die.

Now to get back to the actual making of the plate. After the staves have been made and the bar lines cut in, the engraver is ready to proceed with his work. He first puts in the cleff signs by means of proper dies. He then adds the signature, one or more sharps or flats as the case may be, also with dies, placing the die on the metal at the proper place and striking the upper end of the die with a small hammer used for the purpose. There is just one die for sharps and one for flats, so if the key necessitates two sharps or three flats or whatever combination of sharps and flats it might be, it is necessary for the engraver to repeat the process in the proper positions until all sharps or flats have been punched into the metal plate. After the signature has been punched in the time is indicated. Whether it be $\frac{3}{4}$, $\frac{6}{8}$, $\frac{2}{4}$ or whatever the time, that is added directly after the signature by means of the proper dies.

Adding the Notes

With this out of the way, the engraver is ready to add the notes. As has been mentioned, there are dies for these but not a complete set of dies for all possible notes. In the case of whole notes, the die makes the complete note with nothing more to be done. In the same of half-notes, quarter-notes and so on, the die punches in only the actual note part and does not punch in the stem. In making the plate, the engraver goes along and punches in the notes or parts of the notes that the die can punch. After he has done that he adds stems where stems are necessary by means of a tool known as a graver. This cuts the stems on the half and quarter-notes and completes them. However, for eighth, sixteenth, thirty-second notes and so on there is still another operation to be performed. The flag or what some call the tail of the note must be added even after the stem has been cut into the plate with the graver. For the adding of the flag, dies are provided in the set of music dies. There are dies with a single flag and also dies with double flags. In addition both of these are provided with the flag running upward and others with the flag running downward. Depending on whether the stems of the notes run upward or downward, the workman will use one or the other die. After notes needing stems have been added by the graver, the engraver adds flags where necessary by means of the proper dies. Since a sixteenth note takes two flags and a thirty-second note takes three flags and since dies are provided with only one and two flags, it is necessary in making thirty-second notes for the engraver to take the die with two flags and put the first flag into the impression made by the second flag on his die and add the third flag to the note. And with sixty-fourth notes this must be repeated to add the fourth flag.

Since music consists of chords (several notes that are struck together) and since the dies come only with a single note, it naturally follows that the several notes making up a chord must be hammered in, one after the other and one above the other as indicated on the music Ms.

Expression Marks

This completes the actual note portion of the music together with cleffs, signature and time. But the engraver is far from finished. He must now add the expression marks of which there are many in some music. Most of the expression marks used in music are provided on the dies so that all that is necessary is to punch in the proper expression mark in the proper place on the metal plate. In the case of a series of dots indicating retard, or a long slightly curved line indicating a tie or a slur, or two rather long lines that converge or diverge indicating either to reduce volume or increase volume respectively, these are done by means of the graver already discussed.

If there are any accidentals in the music, that is a note is to be played in other than what it should be according to the key in which the music is written, that accidental, whether it be a sharp, a flat or a natural is added in front of the proper note by a die.

Punching in the Words

This completes the music plate but not the engraver's work. He must now add the words if the music is a song and regardless of what it is he must add the title and the by lines. This is done by individual dies each with a single letter. These dies, naturally, come in different sizes. A larger type face is used for the title of the piece, a slightly smaller type size for the by-lines and a still slightly smaller type face for the words. All of this lettering is added, letter by letter, care being taken in the case of the title and by-lines to properly space out the letters to show equal white space between them and in the case of the words of the music to be certain that each word or portion of a word comes under the proper notes to which it belongs.

Flattening the Plate

All of this hammering on the plate, naturally puts dents in it. So from time to time through the punching process it is necessary for the engraver to stop his punching operations and flatten out the plate. He has a special implement for this purpose. He turns the plate over with the face downward. He then places a tool steel flattener measuring 1½ in. diam. by 2 in. high with a flat bottom on the plate. He hammers the flattening tool gently to restore the flat condition of the plate. This is repeated at various points over the plate until it is again flat. After hammering it out on the reverse side the metal plate is turned over with the face upward and again hammered to further flatten it. In order to not let the plate become too uneven, this hammering process is generally done after the notes have been punched in and at other stages along the line of completion of the plate. The fact that the engraver works at a bench covered either with a litho stone or with a fairly thick steel plate there is not too much distortion to the plate. But it is still enough to make necessary two or three straightening or flattening operations during the making of the plate.

Proofing the Plate

With the plate completed, it is taken to a stone where it is inked with dark green ink. It is then put into a press where it is proofed. The proof, quite unlike the average proof with which printers are familiar is a solid green background with white notes, rests, words and so on. The reason for using green ink instead of black ink is because pencil or ink correction marks made on the proof show up much better than they would if the proof was pulled with black ink.

When the proof is dry it, together with the original Ms., is sent to the composer, author or publisher as the case may be for proof reading. In some cases the firm making the plates do the proof reading before the proofs are sent out but generally the proofs are sent out without proof reading unless the composer, author or publisher requests it.

The reading of music plate proofs is quite a task because every note, every rest, every minute thing in the Ms. must be compared carefully with the reproduction of it on the proof. Where mistakes are made, they are marked on the proof in much the same manner that any proof would be marked except that the usual correction marks are used only for the text since they are not applicable to corrections of music. In the case of a misplaced note, a line is run from the misplaced note to the margin of the proof and the proper note indicated by the letter indicating that note or, in some instances the misplaced note is crossed with an x and the note inked-in in the proper place on the staff. If an accidental has been omitted or put in where it should not be, it is indicated either by adding the necessary accidental or using the usual proofreader's mark to indicate that the one in should be omitted.

When the corrected proofs have been returned, the platemaker's job is done *if* he has made no mistakes. However, if he has made some mistakes in punching in the Ms. on the metal plate then his work is far from done. The correction of a metal music plate is quite a task and cannot be done too often or too much. To do it the plate is placed on the bench with the reverse side uppermost and the misplaced note, accidental, accent, or lettering hammered out. After hammering it out from the reverse side of the plate the plate is reversed and it is hammered out from the face side. The plate is then burnished and the mistake corrected by punching in or cutting in as the case may be, of the proper note, accidental, rest or lettering. Naturally, hammering the plate first from the reverse side and later from the face side weakens the plate because it disturbs the pattern of the molecules of the metal. It follows, then, that it is impossible to make many corrections in the same place or too many corrections in a small area. For instance, if in correcting a plate a new mistake was made it would be difficult to correct the second mistake without weakening the plate beyond further use. Or if an entire line has to be hammered out, the plate where that line comes would be almost too weak for further use. However, in justice to music plate engravers it must be said that they do not make too many mistakes. It is a highly skilled trade which is none too attractive to the worker who is a chronic mistake-maker.

After corrections have been made, the plate is inked, the ink is removed from the plate surface, and the ink remaining in the engraved depressions is transfered to a sheet of transfer paper for photographing by offset platemaking methods.

Time Required to Make Plate

The plate is now ready to be printed on an offset press.

In view of the amount of work that goes into the making of a single music plate for a popular song, for instance, it is interesting to know that it takes an engraver about an hour and a half to make one complete music plate. For more elaborate music, where there are more notes and where the music is much more complicated it takes longer, with two hours about the average time for a music plate for standard sheet music size reproduction.

It might be inferred from this description of the making of a music plate that they are quite costly. This is not the case. The average music plate for a standard size piece of sheet music which means a trim size for the sheet of 9 in. by 12 in. is $10 per plate.

(*To Be Continued*)

Thimble Printery

Combination Letterpress-Offset Equipment Fitted into Arbitrary Available Space

By ROBERT ROYDEN GREER*

**Printing Engineer, Los Angeles, Calif.*

THIS discussion of a Thimble Printery is not presented to readers of *Printing Equipment Engineer* as an example of the ideal equipment layout for a small plant. Rather, the reason for discussing it in this article is to demonstrate what might be considered the best equipment arrangement when you consider the arbitrary floor area available while still preserving good workflow.

Floor space available for this plant was 1100 sq. ft. George Gick, the owner, in El Monte, Calif., wanted a stationery store in the front section. Firm's principal production consists of stationery of all kinds, booklets, mailing pieces, and general printing usually turned out in a somewhat specialized shop.

After analyzing the equipment requirements in relation to the arbitrary limitations of the floor space, 240 sq. ft. were allotted to the office, and 860 sq. ft. to the mechanical department. Despite the floor limitations, and since there are only a few employees in the plant, the aisles average 3 ft. width or better throughout.

The writer is happy to report, however, that Mr. Gick's business has prospered in its present location. As a result, he will build and go into larger quarters before long.

Composing Section

The composing section is a rectangular unit consisting of about 250 sq. ft. It contains a Model 31 Linotype, a 12-magazine rack, a saw-trimmer, proof press, bank and galley rack (2 ft. by 5½ ft.), two type cabinets and a 3 ft. by 4½ ft. imposing table with furniture and galley storage underneath.

The bank itself is placed so it is convenient for either the operator or compositor. Proof press and saw-trimmer are located for any one to use. The imposing table is fitted for furniture and storage on four sides. This four-side exposure works disadvantageously in attempting to provide aisle clearance and still hold the position of the imposing table within limits of its allotted area. The form rack is located under one end of the imposing table which seems to be the best arrangement in this instance.

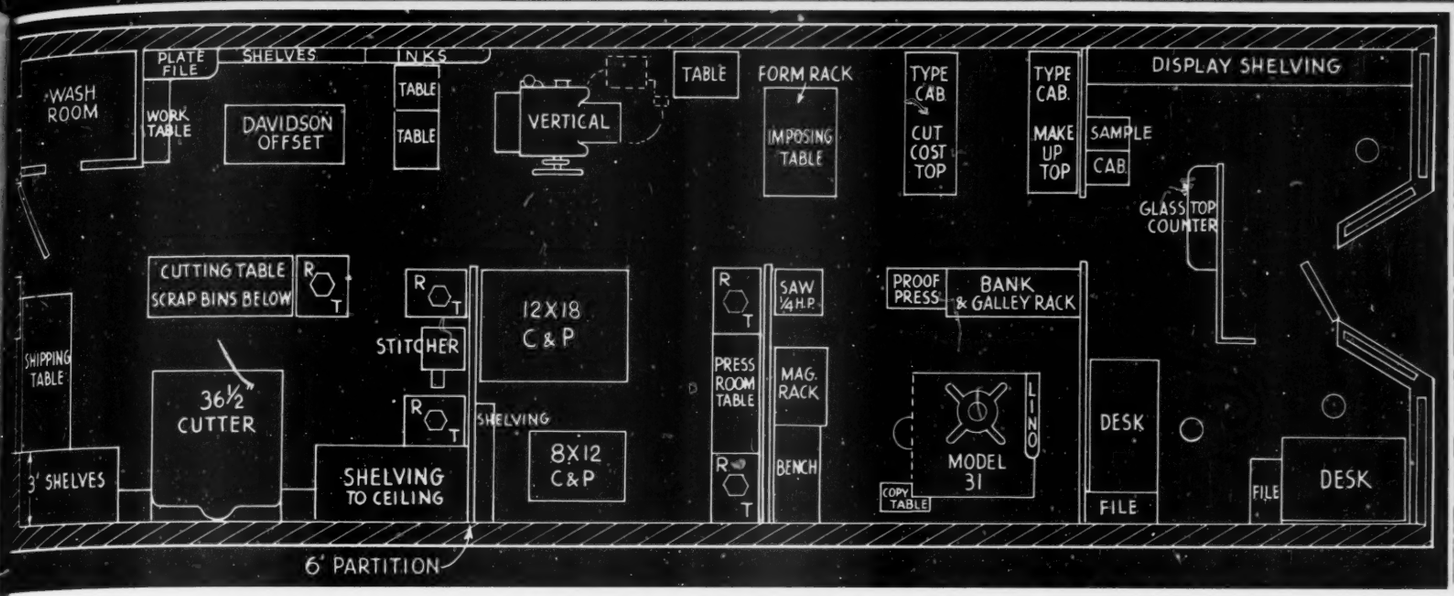
Pressroom Section

The pressroom is worked into a centralized area of about 240 sq. ft. The connecting link between the composing and pressroom sections, of course, is the imposing table. The table is about 7 ft. travel to and from either the Vertical press or the 12x18 C.&P. press. This short distance means a lot to the pressman when he must juggle heavy forms day after day. Also, it is only a short distance to get OKs at the imposing table.

In the pressroom section there wasn't much floor space available in which to put a lot of secondary requirements into operation. Such necessary utilities as roller racks, ink container shelving, etc., were spotted on the wall after the equipment had been moved into place.

The two rolling tables make a tight shop like this much more flexible in operation and reduce bottle-necking at any point.

A 10 ft. long partition between the pressroom table and the two rolling tables and the row consisting of bench, magazine rack and saw-trimmer, was installed for the following reasons: (1) To fasten shelving with high enough start so as not to interfere with working around the rolling tables; (2) To form a barrier against flying chips from the saw-trimmer; (3) To provide wall space on which to hang tools above the Linotype work



bench, and (4) To provide the pressman with wall space upon which to hang tools immediately below the shelving. The shelves are used for storing envelopes, cut cards, packaged letterheads and ruled forms.

Bindery Section

Maximum advantage has been taken of the available floor space in the bindery section. Equipment consists principally of a 36½ in. Diamond power paper cutter, a wire stitcher, three rolling tables and shelving extending from floor to ceiling and flanking either side of the paper cutter. The bindery section floor space is approx. 220 sq. ft.

The cutting table is supplied with a metal-lined top with metal-lined scrap paper boxes underneath. In this particular plant, there is the problem of accumulations of shavings and waste paper. There just isn't room for accumulation of very much waste. Provision has been made to keep waste materials cleared out of the plant promptly to eliminate any fire hazard.

The three rolling tables in the bindery provide an orderly and flexible means for handling work in process from pressroom, to stitcher, to cutter, to shipping table.

Because of the paucity of ready floor space, it was necessary to construct paper stock storage open shelving on either side of the cutter extending to the ceiling. The shelving extends a distance of 20 ft. horizontally and is 3 ft. deep. In other words, the cutter sits within and extends outwardly from the shelving area.

As will be noted, shipping facilities are included in the bindery area. The shipping table is 3 ft. by 6½ ft. The shipping table top contains flat and roll paper, gummed tape fixtures, and twine for wrapping packages. The table is not affixed to the floor but is movable. The reason for this is that slow-moving stock is stored in the shelving area immediately back of the end of the shipping table.

The first shelf of the stock shelving is far enough from the floor so that several cases of paper can be stored on the floor immediately under the shelves. The paper is not unpacked and placed upon the shelves, being just as accessible and considerable labor being saved by storing the cases directly upon the floor. Two full length 2x4 stringers provide air space between cases and floor to prevent penetration of any dampness into the stock from the cement floor.

Offset Press

The Davidson press is located conveniently to the water supply. Working space for the press is about 75 sq. ft. The position of the two work tables at the right of the press is self-explanatory and requires no comment. Above the wall work table at the end of the press have been constructed storage bins for holding the 10x14 press plates. The bins start 6 ft. 6 in. from the floor to provide headroom for the pressman to work at the table underneath. The wall shelves themselves are rather shallow and are provided with a 1 in. lip or cleat at the outer edge to prevent bottles and other objects falling off. Underneath the wall working table storage space has been provided for rollers, dampeners, rubber blankets, and the like.

Space has been provided at one side of the shipping and receiving door for the metal remelting pot which is gas-fired.

Check Solvent Safety

With the approach of the winter months, Safety Research Institute suggests that plants re-examine ventilating arrangements and other safeguards intended to protect workers in solvent-using departments. During the summer months, it may be that natural ventilation from windows and doors has taken care of some of the load of removing solvent vapors. With this source of ventilation now cut off, mechanical ventilation will increase in importance.

A check should also be administered to respirators which are used to prevent vapor inhalation. Where canister-type respirators are provided, the service record should be checked. Winter months may bring an increase in dermatitis because of the increase in dry, chapped skin. A good lubricating cream, provided near the washstand, will be helpful in preventing skin difficulties from solvents.

Job Interest—Work Satisfaction

(Abstracted from address by Edward H. Christensen, Production Manager, Central Typesetting & Electrotyping Co., Chicago, before the 30th convention, International Association of Printing House Craftsmen, San Francisco, Calif., September 1949.)

I WANT to talk about something that cannot be charted or illustrated with a graph. It is the subject of Job Interest and Work Satisfaction. In mass production industries—and printing was the first and is still the greatest example of mass production—it is difficult to keep the worker interested in his job of turning out a quality job. In this day of careful planning of each step in advance and of breaking down each job into specialized tasks, and of having a man do those parts of the job which he can do best, men are liable to find the daily work pretty monotonous. A visitor from Australia said, "You have taken the soul out of printing".

Well, we must put this soul back into our composing room work. We must devote more attention to methods of making these jobs more interesting. Less boredom, discontent and conflict will be the rewards of our effort. We must remember that employees are *people*—each one with pride that can be hurt, nerves that can be jangled, hopes that can be raised, ambitions that can be stirred. Employees may feel a craft interest in their work so that its creditable performance is in itself an end of sufficient importance to lead them to put a plus into their work. It is the creative instinct, the desire in a man to see his work take shape under his hands that makes a true craftsman want to put something of himself into the job. Modern production demands greater and greater subdivisions in individual operations, yet we can take definite steps to give some satisfactions demanded by the creative instinct. For example, let's show them more of the finished results of their work; let's have more "open houses" to show the family how important Dad's job is in the print shop; let's have more supervision that tells the compositor *what* is wanted and not so much *how* to do the job down to the minutest details of the job.

We must constantly impress each man with the fact that he must do his part of the job well if the finished job is to be successful. He must be made to feel that it is important for him to give that extra effort if it is necessary to get the job out on time and with the desired quality.

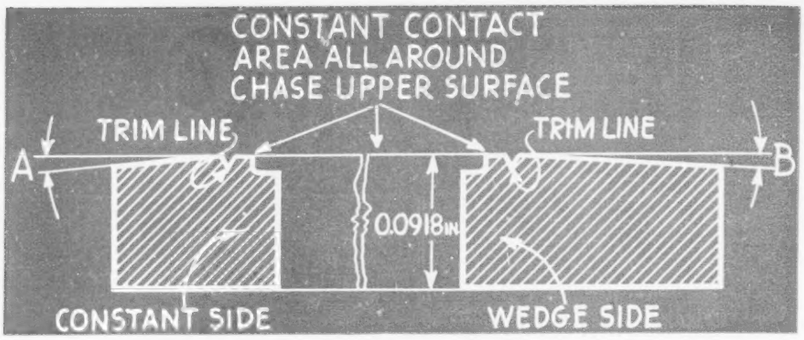


Fig. 1.— **Cross-section diagram of proposed newspaper stereotype chase for use with direct pressure mat molding. The principal modification over standard stereotype chases, explains Mr. Goggin, is in the "land" surface at the top of the chase. On all four sides the top surface area of the chase inside the trim lines with only enough *equal* area outside the trim lines should constitute the high level. Balance of the upper surface should be tapered downwardly and gradually to the outside edges of the chase, as shown at angles A-B, 0.050 in. per inch. In other words, the horizontal surface at either side of the trim line should be equal on all four sides of the type form.**

Direct Pressure Molding

A discussion concerning the need for a new concept in molding technique for newspaper stereotyping

By JOSEPH D. GOGGIN*

**Newspaper Supply Co., Chicago.*

DIRECT pressure newspaper stereotype molding has enjoyed a considerable growth within recent years. For a number of substantial reasons it would seem to be the ultimate method of molding newspaper stereotype mats. However, similarly to the introductory status of other processes, there are a number of "bugs" to be ironed out before present uncontrollable variables have been reduced to the minimum.

The writer is grateful that the ANPA, under the leadership of C. M. Flint, Director of Research, is undertaking a study to determine what happens—and why—in stereotyping.

Meanwhile, the writer feels that some of his own contentions with respect to successful direct pressure stereotype molding will be confirmed when these studies have been completed. It is evident that a new concept of molding operations will have to be developed in order to secure maximum results from direct pressure molding. This may appear to be a somewhat radical statement. However, experience indicates that direct pressure techniques are injured when subjected to roller molding techniques, since, in most cases, many stereotypers imitate roller-molding techniques as far as they can.

One of the bugs of newspaper direct pressure stereotyping consists of chase inaccuracies. Usually, during the transition from roller to direct pressure molding, the newspaper plant will retain its old chases which have seen hard service over a long period of time. It is the writer's contention that one of the causes of failure to secure maximum results with direct pressure stereotype molding is the retention of these old chases which are entirely unsuited to the requirements of the direct pressure method.

Veteran chases may be too low in height (below 0.918 in.); they may be warped; they may be out of square; or the surface which is contacted during the impression cycle is totally unfit for direct pressure molding because of the unequal surface at the top of the chase, both with respect to area and height.

The ultimate goal to be secured in newspaper stereotype mat molding is to have the facilities for controlling each technique in the operation so as to secure precise results. This can only be done by exact determination of all the factors involved. If industry generally uses control methods there isn't any explainable reason why stereotyping can't utilize scientific methods. Stereotyping for too long has remained an art.

Instead of a dial pressure indication of 600 T. or more, the correct cushion would drop the molding pressure to 400 T. or 450 T., since the percentage of loss would be considerably less. But, the pressure at the face of the type form would be equal to the pressure demand. The all-important consideration is that the pressure in a direct pressure machine can be arrested at the right point. This level is presumed to be at the precise level with the type face under pressure. There is no reason for the pressure going below this point, nor prevented from reaching it. In the one instance, it is evident that type damage can result, and on the other side there is interference in securing full impression in the mat.

It is surprising how few stereotype chases will measure up to 0.916 in. or higher, so they can be depended upon to stop the force which drives the impression into the mat. This force is severe, as many composing room machinists know.

The writer is inclined to agree with the opinions of two well known newspaper stereotype executives with respect to the height of chases for direct pressure molding. These men are Harry Wrasse, Stereo Supt. of the Milwaukee *Journal*, and George Fuller, Stereo Supt. of the Cleveland *Press*. These men are considered tops in their field. Both advocate a height of 0.918 in. for chases used in direct pressure molding. When considering the setting up of a theoretical factor at any other level, I feel like a stranded guy.

But, I still feel strongly that only the top surface area of the chase inside the trim lines with an *equal* distance outside the trim lines should constitute the high level. The balance of the upper surface of the chase should be tapered downwardly and gradually out of play to the edge of the chase.

With respect to tapering off the top level on all four sides of the chase frame to provide equal surface resistance all around the type form, and yet provide sufficient frame surface to protect the type by stopping the live pressure (pressure rest), the following argument seems to provide a workable arrangement. (See Fig. 1.)

Since the trim lines of Autoplate chases are usually 5/8 in. from the bolster along the inside of the chase frame, and 1/8 in. additional "land" surface is advisable

beyond the trim line, a safe distance of high level surface on each side of the frame is indicated at ¾ in.

The notes made by the writer on this point include reference to average type forms having approx. only 50 sq. in. of total surface resistance. Since steel yield to pressure is nil at molding pressures, and type matter yields readily under molding pressure, but 25 per cent of surface steel is needed to hold 100 per cent lead-base material. Thus, if these figures are used, only 13 sq. in. of total resistance area on the steel chase would be required, whereas ¾ in. round the 16 in. by 22 in. type form would amount to approx. 54 sq. in. of total resistance area. Incidentally, also, the ¾ in. wide high level around the type form will approximate 100 per cent equal surface resistance with the total or net surfaces of the average type form. So, it appears safe to state that this ¾ in. high level surface (0.918 in. from the bottom of the chase) is adequate for type protection. Thus, any greater chase frame total resistance area merely causes use of higher pressure loads in molding.

Similarly, a ¾ in. distance from the bolster levels of the chase frame at the head and foot is recommended to provide equal distance all around the chase at the high level.

Now, from these distances of ¾ in. from the inside bolster edges to the outer edges of the chase, the level should recede gradually to render it ineffective as a factor of surface resistance. Experience has shown that approx. 0.010 in. drop is satisfactory. Yet due to distance of the taper and its gradual drop, a taper based on 0.050 in. to the inch is recommended.

In regard to the ¾ in. land surface at the 0.918 in. level being adequate to stop the pressure, I am informed that this will hold a pressure far in excess of any *ever used* for molding stereotype mats.

Now, the stereotyper, in some instances, under present inadequate molding technique quickly discovers he can't stop the pressure force during direct pressure molding operation at the proper level. What does he do? He begins the old system of experimenting with molding cushion compensators. Invariably, he softens up the cushions until, in many instances, the molding operation is right back to roller molding conditions with the exception of the "one poke" of the direct pressure method where every level under the cushion reflects variation in the amount of pressure applied.

The idea that the imprint capacity of the stereotype mat is the *only* factor of pressure demand is a tough one to support. It is difficult to drive home the point that solids and halftones have four to six times the amount of surface resistance than a corresponding area of type (say 8 pt.) matter, and up to ten times the resistance of open type matter, which actually determines the amount of pressure exerted over the area. Thus, a solid or halftone does not receive the pressure that type and open areas receive. This fact appears to invite the theory that these solid areas of greater surface resistance require more pressure.

As has been mentioned previously, it is the writer's firm conviction that certain presently unknown elements in direct pressure molding can be determined definitely. The writer believes it would be desirable to employ a dial pressure conversion indicator. This would relate surface resistance, mat imprint capacity and the machine (ram area) pressure into one factor. Maximum results, however, could only be obtained by maintaining proper levels of the chases and the type matter in the form itself, plus the employment of a molding cushion that will retain the pressure at the printing line. The writer is working with a prominent manufacturer in the development of such a gauge. The gauge is intended to be used for determining what the stereotyper receives (type forms) and what he delivers to the pressroom (curved plates) with respect to depth and plate printing levels. The writer will report upon the results obtained at a later date.

Kellogg Appoints Agents

W. J. Holtmeier, Inc., New York, and Richardson-Sovde Co., Inc., Minneapolis, have been appointed sales representatives for Kellogg Switchboard and Supply Co.'s Type-O-Writer Keyboard. The Holtmeier agency will handle sales in the New York metropolitan area, eastern New York state, Pennsylvania, New Jersey and Connecticut. Richardson-Sovde territory will include Minnesota, Iowa, Wisconsin, North Dakota, Nebraska and part of South Dakota.

Newspaper Teletypesetter Operation

By C. R. Snethen*

**Production Manager, Waukegan (Ill.)* News-Sun

THE number of Teletypesetters installations in United States newspapers is indicative of the increased acceptance of this method of line-casting machine composition. Many questions have arisen, however, as to the best method of securing maximum production.

Most newspaper production men are familiar with the Teletypesetter method of composition. For the information of those who are not, the following brief description should help them understand better. All copy is punched into ⅞ in. tape on the keyboard perforator. This is a regular typewriter keyboard, which a skilled typist can operate. The punched tape is placed on a Teletypesetter operating unit which has been attached to a line-casting machine keyboard. The tape operates the line-casting machine automatically, thus utilizing the full capacity of machine's 7 or 8 lines per min.

At the Waukegan (Ill.) *News-Sun*, we have operated Teletypesetters for over three years with what we consider great success. We get 430 lines of type per hour from each of the two line-casting machines, for an 8 hr. shift. This is 3440 lines per day from each machine.

Better than 80⅓ of our straight matter is set on the Teletypesetter and we have little mechanical trouble, with either the perforators or line-casting machines.

Successful Teletypesetter composition is controlled by three factors: (1) Condition of the line-casting machines; (2) Training and expertness of the punch operators, and (3) Intelligent copy cutting to enable the makeup men to get the type they need to keep the page forms

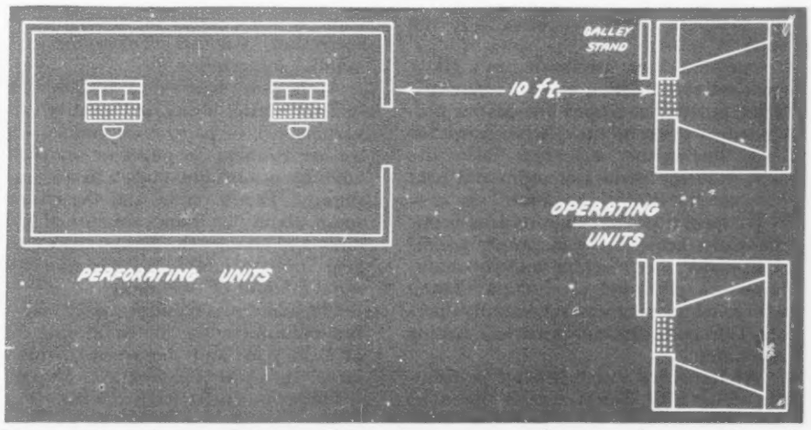
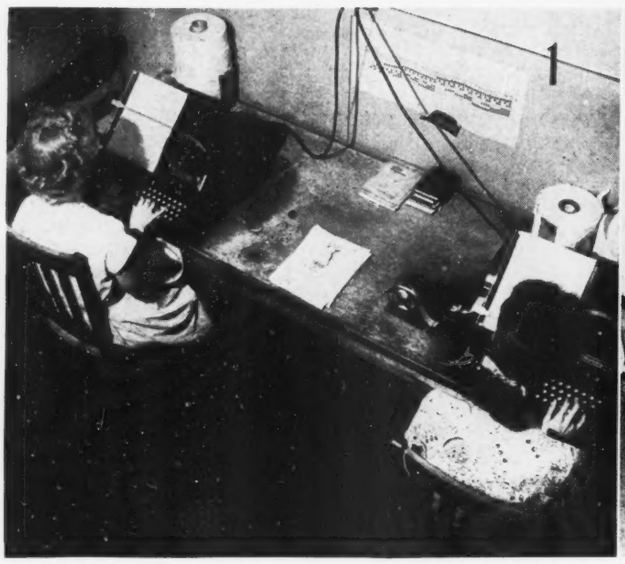
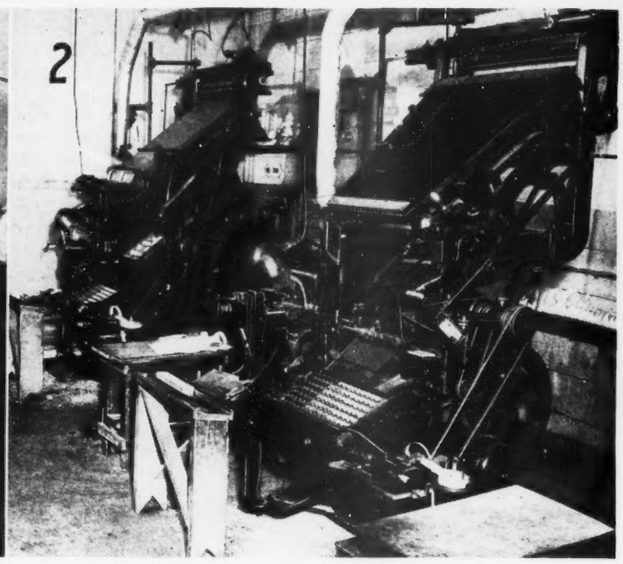


Diagram shows layout of the two Teletypesetter tape perforator and two casting unit equipment in plant of Waukegan (Ill.) *News-Sun*. Casting machines are operated at 8 lines per min. Quarter-segment mold turning mechanism with two molds permits casting slugs at the equivalent of 4 lines per min.





At *1* is shown view of Teletypesetter perforators in plant of the Waukegan (Ill.) *News-Sun*. Three perforator operators are employed to provide continuous operation during lunch time. At *2* is view of casting room for Teletypesetter-operated machines in plant of the Waukegan (Ill.) *News-Sun*. Machine at left is Model 8 Linotype, one at right an Intertype Model B. Mr. Snethen reports production from each machine is 3440 lines of type per 8 hr. day.

moving to the stereotypers steadily all day.

When we installed the two Teletypesetter operating units, they were both put on old machines—one a Model 8 Linotype and the other a Model B Intertype. All parts, where matrices travel were replaced with new parts. These two machines are set at 8 lines a minute. In order to control the metal pot temperature better we changed the mold turning cam segment to a double action segment, which enables us to use alternate molds in casting. This eliminates the use of excess heat in the metal pot, as we are casting at the equivalent of but 4 lines per min.

At each machine, we also have a small stand, which holds a single galley alongside the tray. This eliminates the necessity of the machine standing while the tray is being dumped. We have an apprentice who hangs pigs, puts on the tape and removes the type. From time to time, he lifts the metal from the machine tray to the galley alongside and when the galley is completed, takes it to the bank.

Our perforators are located in a glass-enclosed room which is 10 ft. from the Teletypesetter-equipped line-casting machines. The apprentice who cares for these line-casting machines takes the tape from the perforator room and runs it on the line-casting machines.

We have little machine trouble, as our machinist keeps them in proper condition, just as any machine must be maintained to get good production. Baling wire machinists cannot successfully operate Teletypesetter equipped line-casting machines.

We have two Teletypesetter perforating units. Our Teletypesetter operators were skilled touch typists before we hired them. We have found it pays to get seasoned typists with several years' experience, rather than take untrained typists just out of school. With good previous training, a typist has little trouble in learning the use of the various keys which activate the line-casting machine. Division of words and the various style idiosyncrasies of newspaper English are soon learned. We pay these typists three-fourths of the compositor's scale and have had very little turnover in this department which is operated as part of the composing room.

We use three perforator operators. By doing so, we don't shut the perforators or line-casting machines down during lunch time. This gives the operators an hour relief for every two hours on the perforator. During this relief hour, the typist spends time in the proofroom, holding copy and reading proofs. This proof room experience quickly teaches the typists what errors to avoid when operating the perforator. We have found this a valuable aid in educating our perforator operators in division of words, spelling and style.

All corrections are made on a ring machine which handles all straight-matter correction, whether Teletypesetter or manual composition.

At the *News-Sun*, we use 80 columns of straight matter a day, irrespective of the varying size of papers. Of course, when we are running 38 pages or above, the amount of straight-matter is increased slightly. This gives us and the editorial room about the same amount of space daily and enables the composing room to gear itself to handle approximately the same amount of type daily.

We make two editions daily, with the first edition leaving the composing room at 1:30 p.m. and the second, which is largely a replate, leaving at 2:30 p.m.

Our copy cutter feeds the copy to the Teletypesetter punch operators in the order in which the pages are made up. We start the makeup with sports, then county, society and page one. Local news is sandwiched in all day, but the bulk is set after noon. The copy cutter arranges the copy for the perforators in the order in which it is to be used. He keeps carrying it directly to the perforators, so the operators lose no time walking to get copy or waiting for it. This keeps them punching tape steadily, until relieved. We clear all Teletypesetter composition for the first edition by 1:15 p.m. and any other late first edition is set on manually operated machines.

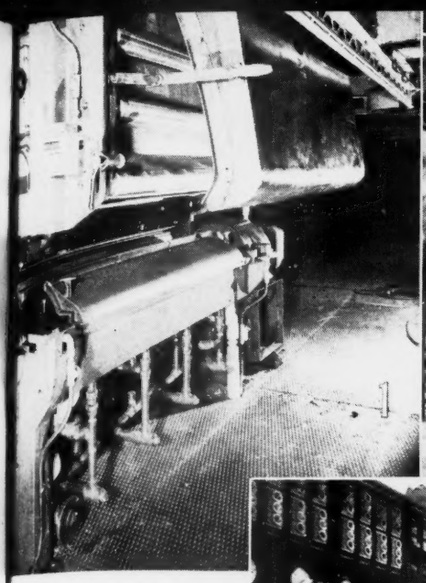
After 2:30 in the afternoon, the Teletypesetters work on features, next-day and time copy. We are never late, due to Teletypesetter composition.

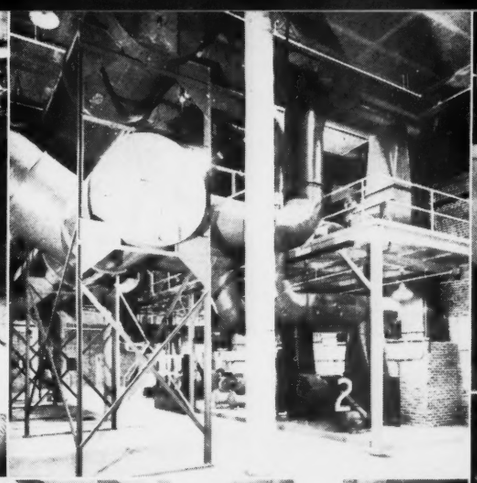
We have the line-casting machines equipped with both 8 pt. and 5½ pt. We do not set classified on the Teletypesetters, but sometimes use them for long takes of agate. When we get the tax list each year, the Teletypesetters are used and greatly reduce the overtime on manually-operated machines.

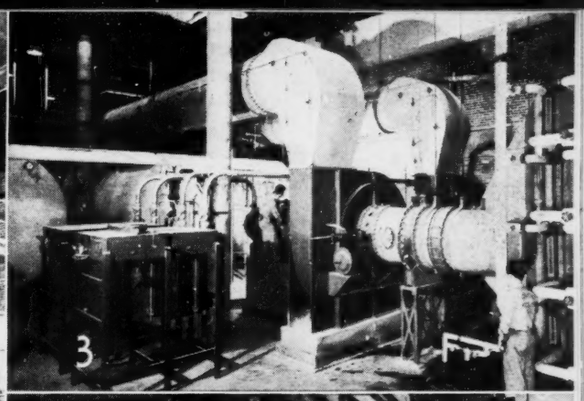
The *News-Sun* management is thoroughly sold on the Teletypesetter method of composition, feeling that while it has not reduced the composing room payroll, it has greatly increased the amount of type available every day.

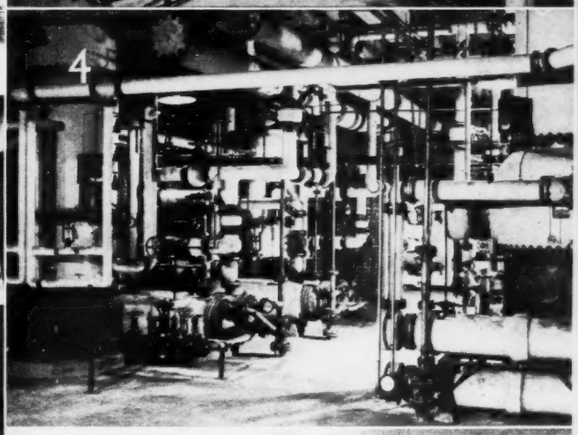
Huber's Chicago Representative

J. M. Huber Corp. has appointed the Edward J. Lewis Co. of Chicago as its representative in that area, according to an announcement by R. H. Eagles, Vice President. The Chicago area includes Illinois and southern Wisconsin. Sales will be under the direction of Herbert Lewis, who has just returned from a tour of the Huber plants and research Laboratories. He is a chemical engineering graduate of Purdue University. Address of the Lewis Company is 9 South Clinton Street.









Views Showing Parts of the Rotogravure Ink Solvent Recovery Equipment in Plant of the Philadelphia *Inquirer*.

1.—View of one of the 61 rotogravure printing press units. The unit has been stripped of the printing cylinder and paper web. The hood has been opened and the web guide rollers are visible. When in operating position, the hood fits tightly over each unit. Here the ink-solvent recovery process starts—as the paper web passes through the press unit, warm air volatilizes the ink solvent which is picked up in this hood and is passed on by forced draft to the solvent recovery system.

Fig. 2.—The ink-solvent and warm air mixture drawn from the press unit hoods is collected from various smaller ducts and is then passed into main ducts seen at the top and left of this picture.

Fig. 3.—Portion of the solvent recovery main floor. The tempering and filtering chamber is at right, blowers and starting motors are in the center, and some of the six adsorbers are visible in the background.

Fig. 4.—View of bottoms of the distillation columns which extend to the top of the building three stories above.

Fig. 5.—In this view are shown the automatic control panels on the top floor of the *Inquirer* building. From this remote position, the operator is able to observe and control operations in the entire recovery plant system.

Fig. 6.—View of new building in which the Philadelphia *Inquirer* plant is housed. Installed rotogravure press units number 61; plant is large enough to take care of 140 press units.

Solvent Recovery Cuts Rotogravure Costs

By W. B. Leighton*

**Carbide and Carbon Chemicals Corp., New York, N.Y.*

THE large-scale post-war expansion of the Philadelphia *Inquirer* in the field of rotogravure printing is a reality. The *Inquirer* now has in operation, in an entirely new building (Fig. 7), 61 press units, including 50 regular production press units, 6 cover-press units, and 5 proof-press units.

Before construction on this plant was started, the *Inquirer* was faced with two important problems. The new plant would use huge quantities of roto inks containing highly volatile solvents. The first problem was to reduce printing costs as much as possible by recovery of the heavy tonnages of ink solvents for re-use in the roto inks.

The second problem was to prevent any situation that might be caused by the discharge of large volumes of solvent vapors into the air in a crowded neighborhood in downtown Philadelphia.

The magnitude of these problems is illustrated by the following statistics. Average hourly exhaust of solvent from presently installed presses is estimated at 2000 lbs. per hr. If a large percentage of production presses are run on monotones with increased paper web usage, total solvent exhaust might run as high as 2800 lbs. per hr. Moreover, the publisher plans to increase the press capacity at a future date to 140 press units.

Answer to Problems

The answer to both problems was the installation of a solvent collection and recovery system employing a special type of vapor absorbent carbon. Engineers of the Special Products Div. of Carbide and Carbon Chemicals Corp. pro-

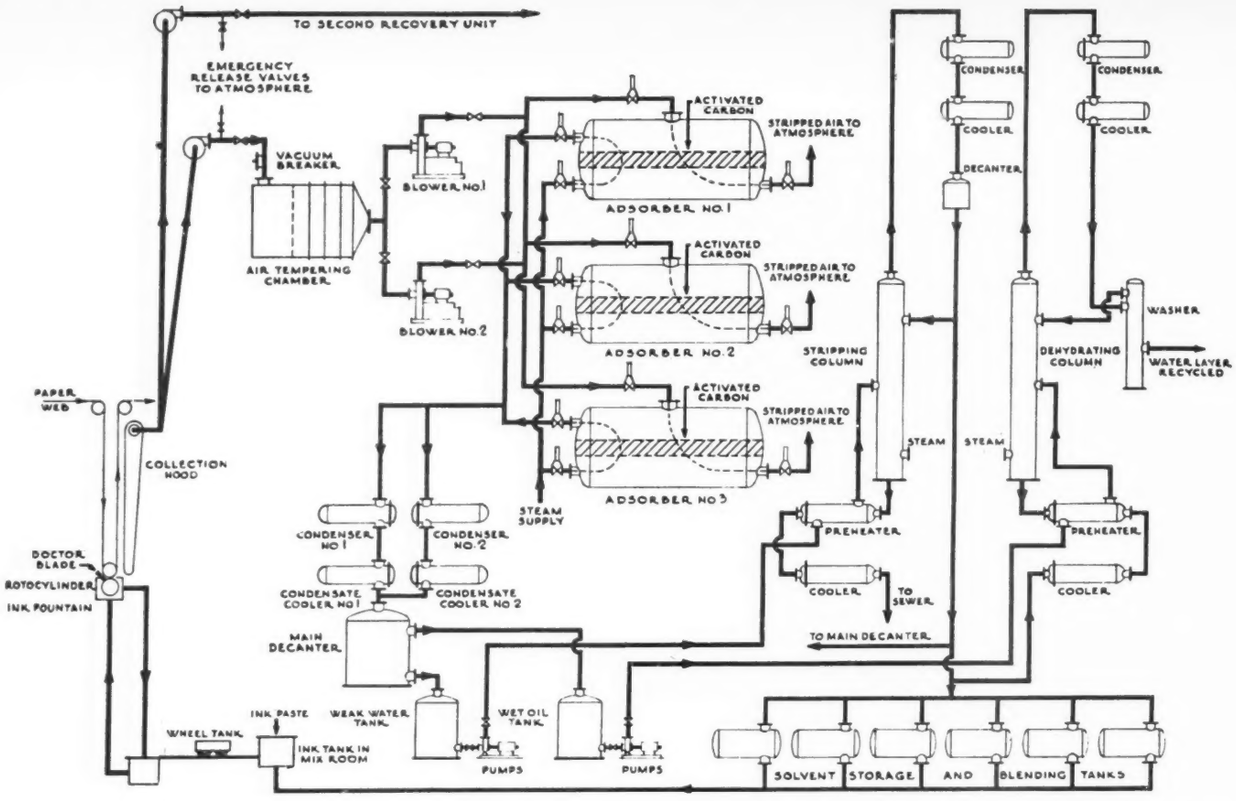


Fig. 7.—Comprehensive floor diagram of rotogravure ink solvent recovery plant and solvent cycle. Starting from the press unit at the left, the reader can trace the process through various steps to (1) Stripped air at atmosphere, (2) Waste to sewer, (3) Solvent storage and blending tanks, and (4) Ink tank in mixing room.

posed a two-unit solvent recovery plant. One-half of the system is designed for recovery of the "high speed" solvent used in the inks applied to newspaper rotogravure stock. This solvent, consisting of esters and hydrocarbons, is selected because of its rapid evaporation rate. The inks dry quickly enough to keep pace with the high speed presses through which the paper passes at 1000 f.p.m. The other half of the system is designed for recovery of the "low speed" solvent in the inks for printing cover stocks and coated paper used in magazines. These presses run at about one-half the speed of the "high speed" presses and the paper moves through at 500 f.p.m.

The solvent collection system is expected to collect a minimum of 80 per cent of all solvent used in the inks, and the recovery system is expected to deliver substantially all of this solvent for re-use.

Efficient Solvent Vapor Collection Important

Efficient collection of solvents from the press units was a prerequisite to high over-all solvent recovery. The presses were designed with a view to accomplishing this. Deeply recessed ink fountains with well enclosed printing cylinders not only assist in efficient solvent collection but prevent undesirable drying of ink on the printing cylinders.

Each press unit is equipped with a tight fitting hood (Fig. 1) under which the paper web passes after it leaves the printing cylinder. Heated air is passed through this hood thus vaporizing the solvents and drying the ink following each impression. The vapor-laden air from each hood is exhausted through a duct which delivers it to the top floor of the rotogravure building. There, through the proper system of exhaust fans and duct headers, it can be passed through either half of the solvent recovery plant. These same fans and duct systems can exhaust the vapor-laden air directly to the atmosphere in case of emergency.

The special vapor collection and drying hoods on each press unit and the necessary vapor-laden air collection ducts and duct header system for delivery of the vapor-laden air to the recovery plant, were supplied by B. Offen and Co. This extensive collection system (Figs. 2 and 3) provides for picking up the solvent-air mixture at any one of the 61 press units and feeding it into either half of the dual recovery system.

Special floor ducts have also been provided to pick up solvent vapors during those periods when press units are opened for cylinder changes, washing of cylinders, or cleaning of ink fountains. Careful consideration was given to the efficient collection of solvent vapors at all points where these vapors might conceivably escape. Balance of fresh make-up air supply to the pressroom and withdrawal of vapor-laden air from the pressroom is such as to cause a slight vacuum in the pressroom. This negative pressure keeps any stray solvent vapors confined to the pressroom area. Consequently, any such vapors ultimately pass into the collection system.

Solvent Cycle and Recovery

Incoming inks for use in the roto presses are supplied as relatively thick pastes with minimum allowable solvent content. Sufficient additional solvent is added to raise the solvent concentration to approximately 75 per cent by weight before the inks are ready for use. Present solvents are ester-hydrocarbon mixtures.

Heated air supplied to the press hoods assures vaporization of the solvents and satisfactory ink drying. In order to provide adequate drying, while at the same time maintaining exhaust air requirements within an economical range for solvent recovery, part of the exhaust air is recycled. Average temperature maintained in the hoods is about 125 deg. F.

The vapor-laden air delivered to the recovery system by the press exhaust fans is picked up and passed through this system by means of four motor-driven blowers, two blowers in each recovery unit. These blowers draw the air through removable glass fiber filter units to remove paper and dust particles. The air is then passed through finned-tube, air cooling and heating units for proper tempering prior to passage through the beds of activated carbon contained in special adsorber vessels. The vapor-laden air enters the top of the adsorbers

at one end. The exhaust air, stripped of solvent, issues from the other end.

Steam at low pressure is used to remove the adsorbed solvent from the carbon and to carry the solvent vapor to equipment where both steam and solvent are condensed and where the solvent is processed for re-use. The solvent-processing part of the system consists of condensers, coolers, decanters, and washers, heat exchangers and distillation columns, and inter-connecting piping. All of this equipment is fabricated of Type 347 columbium-stabilized chromium-nickel stainless steel for maximum service life and freedom from contamination.

The steam and solvent mixture from the adsorbers of the two recovery units passes to condensers and coolers on a mezzanine floor above the main recovery plant floor. Here the mixtures are condensed and cooled and flow by gravity through a system of piping to a sub-basement level where they enter stainless steel-lined, continuous decanters to separate the aqueous and hydrocarbon layers.

The upper layers from the decanters may contain hydrocarbons (toluol, etc.) some ethyl acetate, isopropyl acetate, and butyl acetate. If present in the inks, smaller amounts of ethanol and acetone may also appear here. These layers flow by gravity into "wet oil" surge tanks and are then pumped through preheaters to dehydrating columns which are designed to reduce the water content of the solvent to a minimum. Solvent from the base sections of these columns is cooled and sent to dried solvent storage. Solvent-containing water, removed as distillate from the dehydrating columns, is recycled back to the main decanters.

From the main decanters too, the lower layers of so-called "weak-water" flow by gravity into "weak-water" surge tanks. This "weak-water," contains the major portion of the water-soluble components of the ink solvents. These may include esters, ethanol, and possibly acetone. The water layers are pumped through preheaters to distillation columns (Fig. 4) where substantially all of the solvent is stripped out as distillate. The water waste from the stripping columns is cooled, then mixed with cool waste water from plating and photographic room processes, and discharged to the sewer.

The destination of solvent distillate from the stripping columns depends upon its composition. It may either be transferred directly to storage or returned to the main decanters for further separation and purification.

Solvent from the storage area is properly blended and re-used by mixing with incoming inks in a special ink mixing room. The final ink mixture is pumped through a closed pipe system to the press fountains, thus completing the cycle.

Ink Formulation Flexibility

It was considered possible that, at some future date, the rotogravure technical staff might wish to vary the ink solvents, using other ester, hydrocarbon, alcohol, or ketone solvents. This required extreme versatility in the recovery system.

The dual recovery system permits handling two extremes in evaporation rates of solvents. Thus "high speed" and "low speed" solvents can be handled separately. The essential difference between these two speeds is usually obtained through variation of the hydrocarbon fraction.

Best prediction at the outset was that the quantity of solvents for high and low speed inks used would be approximately equal. This is the ideal condition for the present recovery system with its two complete units. In the event of unequal consumption, the solvent handled by one 3-adsorber recovery unit may consist of a mixture of two different speed solvents. If the proportion of these solvents is such as to favor either high or low speed solvent, the mixture can be prepared for re-use by addition of proper solvent.

If the balance between the two solvents is such that the solvent mixture recovered is unfavorable for reformulation by solvent addition, space is available to add batch distillation equipment to make definite boiling range separations. Such equipment may never be justified because it would only be for use in extreme cases at solvent change-over times, or because of an unusual demand for a special type of printing.

The ability to remove a variety of solvents from the "weak water" and to separate water from the hydrocarbon solvents by employing a system of both stripping and dehydrating columns permits wide latitude in the range of solvents that can be separated. Provisions have, in fact, been made in the tank field for a number of different solvent cuts.

Solvent Storage Underground

The solvent storage field is all underground. Storage tanks are connected by 1½ and 2 inch lines to an ingenious manifold, control and pumping system in an underground room adjacent to the tank farm. Through this system, solvents from "high speed" inks, solvents from "low speed" inks, new solvents and solvents being blended for re-use can be led into or drawn out of the proper tanks. Engineers of C. & C. C. Corp. co-operated with Eggley-Furlow, Philadelphia Engineers, in this phase of the work.

Solvent Conservation Net Savings

The plant has not been in operation long enough to yield exact costs or efficiencies. Experience in other plants indicates that overall solvent recovery should be 80 per cent or better. With present operating capacity, and at today's solvent prices, it is estimated that the complete solvent recovery plant will entirely pay for itself in less than four years. This includes the entire vapor collection system, adsorber units, purification equipment, and storage facilities.

Solvent-Stripped Air Disposal

From each adsorber, the vapor-free exhaust air is carried by duct-work to a large plenum chamber. This chamber is actually a room constructed as part of the rotogravure building and located along an outside building wall. The chamber is equipped with louvre-type outlets which are an integral part of the building wall. These outlets handle the entire volume of exhaust air from the recovery plant. The plenum chamber serves to combine blow-off steam and high moisture content air from freshly steamed adsorbers with low moisture content air from adsorbers well along in the adsorption cycle. The resultant mixed exhaust airstream discharges through the building wall louvres with a minimum fogging effect. Entrained moisture is practically completely removed within the chamber.

The air exhausted to the atmosphere is substantially solvent-free and odorless. This, of course, satisfies the second condition imposed upon the recovery system

ANPA Mechanical Committee Revised

PRESIDENT Edward S. Friendly of the American Newspaper Publishers Assoc. recently announced appointment of members of the ANPA Mechanical Committee. The appointments are as follows:

Chairman, Edward H. Evers, Production Mgr., St. Louis *Globe-Democrat*.
Lyle K. Anderson, Vice President, Minneapolis (Minn.) *Star* and *Tribune*.
John L. Blake, Scripps-Howard Newspapers, New York, N. Y.
T. A. Corcoran, Purchasing Agt., Louisville (Ky.) *Courier-Journal* and *Times*.
Leven T. Deputy, Production Mgr., Dallas (Tex.) *News*.
Harry T. Eybers, Production Mgr., Salt Lake City (Utah) *Tribune Telegram*.
B. F. Garrity, Production Mgr., Gannett Newspapers, Rochester, N. Y.
W. E. Gibbons, Mechanical Supt., Chicago *Herald-American*.
Leslie J. Griner, Production Mgr., Detroit *News*.
Shields Johnson, General Mgr., Roanoke (Va.) *Times* and *World-News*.
Stephen J. Lambert, Production Mgr., Brooklyn *Eagle*.
F. Richard Lilly, Miami (Fla.) *Herald*.
William F. Lucey, Business Mgr., Lawrence (Mass.) *Eagle* and *Tribune*.
John W. Park, Production Mgr., Chicago *Tribune*.
Earl Weiskittel, Youngstown (O.) *Vindicator*.

when the *Inquirer* decided to erect the new rotogravure printing plant in the downtown Philadelphia area.

Press Operation and Collection Coordinated

Signal lights in the solvent recovery plant control room indicate which of the two solvents—high or low speed—are being used on each press. These lights assist the recovery plant operator in determining whether the various presses are connected to the collection headers for discharge of vapor-laden air to the proper recovery unit. This remote signal light and damper control system parallels a similar system installed at the individual presses. Each time a press is placed in operation on a new production run, it is only necessary for the press foreman or recovery plant operator to make sure that the damper in the collection duct from that press is set to pass vapor-laden air to the proper recovery unit. In every other respect press operations are entirely independent of recovery plant operations.

The total volume of air being handled by the blowers in either recovery unit is automatically controlled to maintain a definite suction of approximately one inch of water at the recovery unit air-inlet. This suction is held constant regardless of the number of press units that may be operating. Thus the air discharge from the presses to the recovery plant is identical to or slightly better than if the presses were to exhaust directly to atmosphere. If the suction at either recovery unit inlet is reduced below a predetermined value, an electrical circuit becomes energized to position relief dumpers automatically so that the press fans will discharge vapor-laden air directly to the atmosphere.

The total air-handling capacity of the solvent recovery plant is sufficiently great to insure adequate ventilation of all the press units when all are in operation. This large air volume capacity permits extreme latitude in printing operations without risking hazardous concentrations of solvent in the exhaust air from press units. Solvent concentration is not expected to exceed one-quarter of the lower explosive limit.

Automatic Controls

The operation of the recovery plant is as completely automatic as possible with the exception of starting up and shutting down the distillation equipment. The necessary instruments and control interlocks are located in one central control room (Fig. 5) on the top floor of the rotogravure building. From this control room area, the recovery plant operator is able to observe and control operations in the entire recovery plant system.

The operating cycle of each 3-adsorber unit is set so that most of the time two adsorbers are in parallel service, receiving vapor-laden air, while the third is being steamed. The vapor-laden air streams are passed in succession to each adsorber until it is fully charged with solvent. While there are always two adsorbers receiving vapor-laden air, the service periods of each are so adjusted that when one is fully charged the other is only half charged.

To effect removal of the adsorbed solvent, steam is passed into the charged adsorbers. Following this, the freshly steamed adsorber is opened to the vapor-laden air stream just long enough to reduce its temperature and partially dry the carbon bed. It may then be closed off to stand idle until it becomes necessary to bring it into service again.

The cycle of operations in each recovery unit is controlled automatically. The total adsorption time is automatically increased or decreased in accordance with the air flow which varies nearly proportionally with solvent load. The steaming rate and steaming time are also controlled automatically. Although the two recovery units have been designed for independent operation, the operating cycles are so interlocked that no two adsorbers can start steaming at the same time. This prevents excessive instantaneous steam demands.

Safety Features Stressed

Due to the fact that the solvents used in the rotogravure inks are highly flammable, it was necessary to give careful consideration to the handling of these solvents at all points in the solvent cycle.

The first safety step was to make sure of adequate ventilation of the press units at all times so that the concentration of solvents in the exhaust air be kept within a safe operating limit. In order to make certain that these concentrations remain within safe limits at all times, continuous combustible gas analyzer units are utilized to analyze continuously and record the concentration of solvent vapors in the various press exhaust ducts. These concentrations are recorded as percentages of the lower explosive limit. It is not expected that these concentrations will exceed one-quarter of the lower explosive limit under normal operating conditions. If for any reason these concentrations are exceeded, warning alarms are sounded. In addition to analyzing continuously and recording the concentration of solvent vapors in the press exhaust ducts, gas analyzers are also used to record continuously the solvent concentrations in the main vapor-laden air ducts to the two recovery units.

As previously described, if the suction at either recovery unit inlet is reduced below a predetermined value, an electrical circuit becomes energized to position relief dampers automatically so that the press fans will discharge vapor-laden air directly to the atmosphere. Thus control of both solvent concentration and suction at the recovery plant inlet ensures the handling of safe air volumes at all times.

The recovery plant distillation equipment is located in a special fireproof tower section of the building. This section is adequately protected with a carbon dioxide system and provided with forced draft ventilation. This ventilation is, of course, cut off in the event that a fire initiates the carbon dioxide system. Special control interlocks ensure that further discharge of solvent to the distillation section is cut off in the event of fire. The equipment in the distillation section is arranged and designed for a minimum solvent hold up at any time.

The decanter room located in the subbasement section of the rotogravure building is also specially equipped with carbon dioxide flooding nozzles and is well ventilated. All piping within the building walls or floors designed for carrying solvent from one part of the process to another is encased with outer steel piping and embedded in concrete so as to fully comply with Fire Department regulations and local ordinances covering such installations.

The air in the decanter room and in the ink mixing room is continuously analyzed for solvent concentration. Instruments maintain a 27-hr. record of these concentration readings. In the event solvent is detected, an alarm is sounded.

The handling of large air volumes from the press units, adequate ventilation of all areas in which solvents are handled or stored, and continuous analyzing and recording of solvent concentrations in the various solvent areas insure safe operation of this large recovery installation.

Future Expansion

The present recovery plant is designed for 80 press units. The area provided for solvent recovery equipment is double the size now needed, to allow for future expansion. The steam and water supply headers have twice the carrying capacity needed for the equipment now in operation. Each of the recovery units now installed contains sufficient carbon to permit handling solvent at the average expected rate of 3200 lbs. per hr. with a total of 80 press units in operation. However, provision has also been made in the size of each adsorber vessel to permit adding sufficient carbon to handle solvent at the maximum expected rate of 4400 lbs. per hr., if a large percentage of the 80 press units are run on monotones with increased paper web usage.

EQUIPMENT & SUPPLIES

Additional information concerning Equipment and Supply items and technical literature may be obtained by addressing your request to *Printing Equipment Engineer*, 1276 West Third St., Cleveland 13, Ohio.

Dexter-Cahen Signature Notching Machines

ANNOUNCEMENT has been made by the Dexter Folder Co. of the Dexter-Cahen Book Signature Notching Machine. The machine and method was developed by Alfred Cahen, Chairman of the Board, World Publishing Co., Cleveland.

The purpose of the Dexter-Cahen Signature Notching Machine is to make it possible to bind books, catalogs and magazines by the hot-melt glue method eliminating wire stapling or thread sewing. Books may be rounded and backed in the customary manner after the folded signatures have been notched, gathered and glued off at the binding edge. Or, they may be bound with flat back along the binding edge. The notching operation follows immediately after folding. It is stated hard-bound round-backed books will retain their shape indefinitely.

Mr. Cahen stated that the objective in developing the machine was to provide a method for producing rounded and backed books in place of thread-sewn books at a greatly decreased production cost, and at the same time to produce a binding that will compare in handling quality with thread-sewn books.

This machine is now being built to be fed by hand operation or attaching to a folding machine and delivering the folded sheets directly to the notching machine without extra handling. With the hand operation the signatures will have to be taken out from the folder and dropped singly on the chain conveyor that feeds it in direct to the notching knives and the cutting of the notches is done on a rotary cylinder, similar to a rotary printing press.

This machine will handle signatures up to 18 in. length which will enable a regular size book to be done two-up, up to a size 6 in. by 9 in. The width of the signature can vary from 3 in. up to 12 in.

The speed of the machine will be as fast as any operator can feed it, or, if attached to a folder it will run at the same speed as the folding machine, or, if a separate automatic signature feeder should be attached it will be limited to the speed of the feeding mechanism.

In operation of the machine, the folder signatures are fed to guides. Running horizontally from the feeding position are two chains, one at either side of the board. At spaced intervals on the chain, two corresponding pins or studs extending vertically from the chains, carry each signature forward to the die unit after which the punched or notched signatures are deposited upon a conveyor belt or jogger box.

The notching is done on the folded edge of the signature. The notches are ¼ in. length and are spaced ¼ in. apart. On the outside folded edge, the notches are approx. 1/16 in. deep. When the hot-melt glue is applied to the notched edges, the holding power of the adhesive is greatly increased because of the four edges to which it is applied. Another feature of the binding is that the signatures are notched in such manner that when the complete book is assembled the notches are staggered one with another checkerboard fashion.

Floor space required is 4 ft. wide by 6 ft. long by 3 ft. high. Life of the die or notching elements is claimed to be indefinite. The elements are fabricated from a special kind of steel. A 2 h.p. motor is used to drive the machine.

It is planned at a later date to produce a machine for attachment to automatic folders and to the folders of rotary printing presses.

In the binding of book editions such as Bibles, the tipping in of inserts by hand is eliminated. Inserts are simply collated in proper position in the assembled signatures. Thus, the inserts and/or end sheets are glued into the book at the time the signatures are glued all in one operation.

Reliance Motor Bulletin

RELIANCE Electric and Engineering Co. has recently issued a 4-page bulletin descriptive of the Reliance Explosion-Proof and Corrosion-Resisting a.c. Motor. The motor is designed for any application in industries where chemical atmospheres prevail. Sponsor states the ½ h.p. to 20 h.p. motor is built to standards set by the Underwriters' Laboratories for operation in hazardous locations where gasoline, oil, naphtha, alcohols, acetone, lacquer solvent bases and natural gas are present. The bulletin, measuring 8½ in. by 11 in. and printed in blue, red and black, illustrates the various design features and materials in the motor.

Retractable Board Holder

WINTON Engineering Co. has announced a device which enables the pressman to remove loads of freshly printed sheets from the jogging box without shutting down the press. The device, known as the Winton Retractable Board Holder, is bolted beneath the main horizontal members of the jogging box on the press so that a plywood board can be slid underneath the joggers.

While the press is running the pressman slides the plywood board into the jogging box on the rails of the Retractable Board Holder. The plywood board catches the freshly printed sheets while the loaded skid is removed. The empty skid is then raised until it lifts the plywood off the retractable rails. The plywood board thereby becomes a part of the load and stays on the skid. The pressman then sets the lift mechanism for normal lowering of the load.

The retractable rails move in and out by means of a self-locking lever which can be placed on either side of the jogging box. The ½ in. plywood boards must be cut a few inches wider and longer than the largest sheet printed on the particular press the device is installed on, and the skids must be a few inches smaller than the plywood boards.

Manufacturer claims the board holder is valuable on jobs where gloss ink, varnish, or flat ink are used in preventing offset and smudging of the bottom sheets. When certain types of jobs require that the printed sheets be piled in short lifts, four wooden corner blocks and heavier plywood boards (approx. 1 in. thick to prevent sagging in the center) can be used so that the short loads can be piled in double and triple decks on one skid.

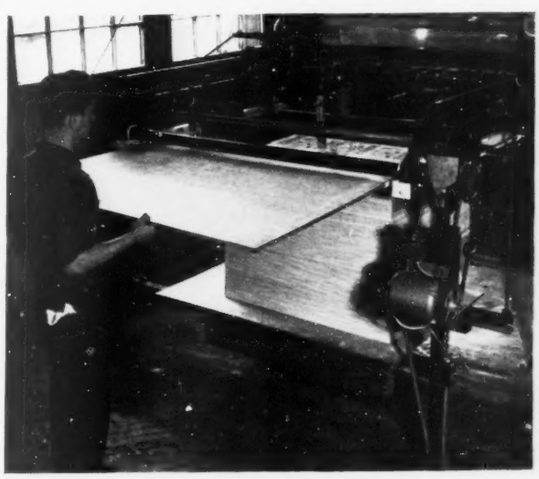
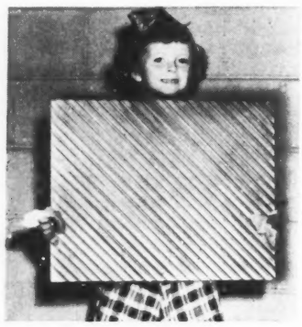


Illustration shows pressman sliding a plywood board on to the Winton Retractable Board Holder, a device which enables removing a load of freshly printed sheets from the jogging box without shutting down the press.

Wesel Magnesium Final Base

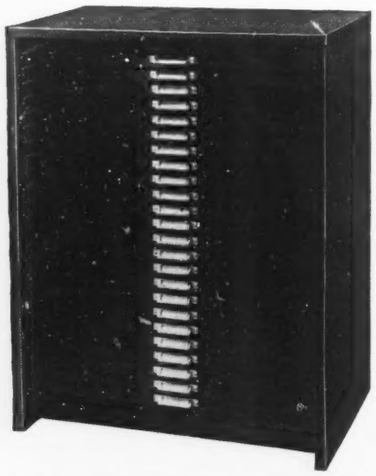
WESEL Mfg. Co. has announced the Wesel Magnesium Final Base, a plate mounting base made of magnesium for use on high speed cylinder printing presses.

Magnesium is one-fourth the weight of cast iron which enables ease in handling. Construction of the base is the same as



the Wesel Final System iron base. Racks mounted in the center of the wall of the narrow grooves prevent the grooves from becoming clogged with paper, dust or ink. Sponsor states the magnesium base is available for any size flat-bed cylinder press.

With the aid of Dow Chemical Co. and Aluminum Company of America engineers and research laboratories, after World War II a special magnesium alloy casting was produced for machining as a Wesel Final Plate Mounting Base for a Miehle Vertical and the bed of a Miller press. The experimental bases were sent to two large printing establishments with instructions to test the bases for a year. Manufacturer states Wesel engineers found that after many million impressions, the bases had given satisfactory service.



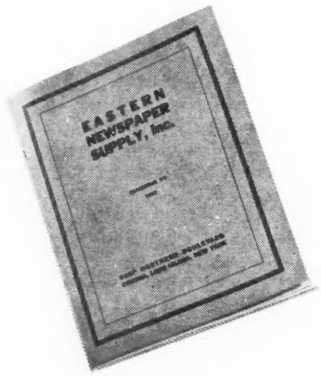
Dustproof Type Cabinet — Foster Mfg. Co. has announced an all steel, dustproof type cabinet with a capacity of 24 standard type cases. Cabinet body is constructed of 16 and 18 gauge steel and each wall panel is reinforced with stiffners. Sponsor states that each case is mounted on minimum friction runners. The single tier cabinets can be arranged to form a 48 case capacity unit by bolting two cabinets together.

A.C. Motors Bulletin

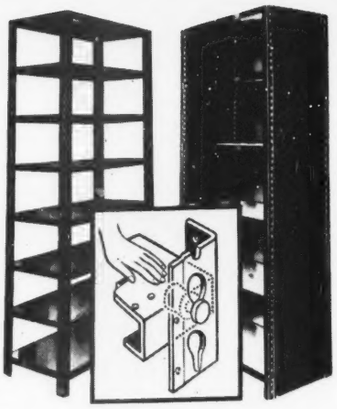
PREPARED especially for superintendents, managers and purchasing directors in the printing industry among others, is an informative 8-page bulletin presenting selection data on a.c. motors manufactured by Reliance Electric & Engineering Co. New torque and current standards adopted recently by NEMA for a.c. motors in design classes A, B, C, D and F are explained and tabulated. Described and illustrated are 12 features incorporated in both Reliance general-purpose and special-duty motors of from 1 to 200 h.p. in protected open, splash-proof, totally enclosed, fan-cooled, explosion-proof, and corrosion-resisting types. Printed in three colors by letterpress, the bulletin measures 8½ in. by 11 in.

Newspaper Equipment Catalog

EASTERN Newspaper Supply, Inc., has issued an amply illustrated 40 page catalog containing stereotype, composing room, engraving and pressroom equipment, supplies and acces-



sories handled by that firm. A brief description, specifications and price appear with each item. Two pages in the back of the catalog contains an alphabetized index. A green cover, printed in blue ink, binds the 8½ in. by 11 in. catalog. Copies are available by addressing a request on your company letterhead to Eastern Newspaper Supply, Inc., 9603 Northern Blvd., Corona, Long Island, N. Y.

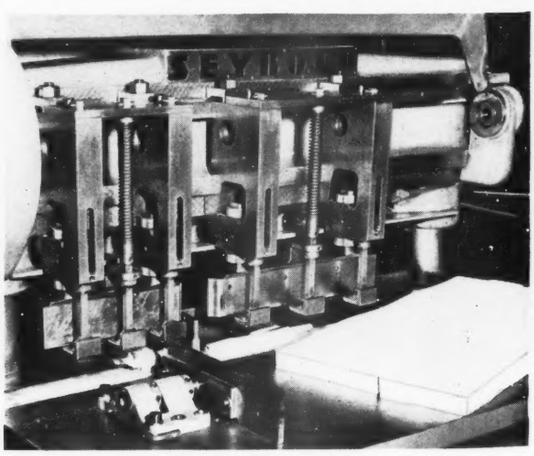


Stud Aids Shelf Assembly —A special Iron-Grip stud has been designed by Equipto, Div. of Aurora Equipment Co., for assembling the company's line of Iron-Grip Steel Shelving. The shelves are assembled by slipping the stud into a hole in the shelf and pressing the shelf down into a keyhole in the upright. The shelves are movable on 1½ in. centers for adjustment, with dividers on 1 in. centers. This type of construction is available in open and closed shelving, parts bin and counters. A 24-page catalog, describing the various units and illustrating the assemblies, is available.

Two Harris Improvements

TAB cutting with the Seybold Hydro-Drill has been made possible by development of optional tabbing attachment for the multiple-spindle paper drilling machine, according to H. A. Porter, Vice President in Charge of Sales for the Harris-Seybold Co. Sponsor claims the attachment can tab piles 1½ in. high. A full range of tabs, from 1⅛ in. to 11 in. wide in all cuts, is available.

At a recent meeting of the company's Central District sales representatives, Mr. Porter announced a series of contactor stops for the Seybold Auto Spacer which he stated will permit a minimum of ⅜ in. continuous spacing. Optional equipment in place of the standard 15/16 in. minimum, the ⅜ in. spacing is designed for cutting narrow labels and other small items.



Tab cutting attachment for Seybold HFA Hydro-Drill which is claimed can tab piles 1½ in. high.

Goss-Duplex Dek-A-Tube Press

THE Goss Printing Press Co. has announced the Goss-Duplex Dek-A-Tube press, which is designed for the average newspaper in the medium size daily field. It is said to meet the specific need of publishers whose requirements have grown beyond the capacity and speed of Goss-Duplex flatbed presses.

The Dek-A-Tube incorporates the features of the tubular type of press, requirements being: casting one plate for each page; straightline production without angle bars; and increasing page capacity in 2-page steps up to full capacity of the press. The Dek-A-Tube is a decker type press with the units of 4-page capacity superimposed, placed in tandem or in parallel. Sponsor claims it has a normal speed of 25,000 newspapers per hr. and a max. speed of 30,000 papers per hr.

The press may consist of any number of units up to a maximum of 48-page capacity. It can be initially manufactured with a capacity of 8, 12, 16, 20, 24, 28, 32, 36 or 40 pages. All units can be made single or double reversible to provide for color printing, and one, two or three colors and black can be produced on various pages as desired.

Due to the multiple arrangements in which the units and folders can be placed, the press can be installed in a low ceiling pressroom, the minimum ceiling height being 9 ft. The paper roll frames are designed for use with one or two-page wide rolls having a max. dia. of 40 in. The tension in the paper rolls is controlled by manual operation although automatic tensions can be used if desired.

Incorporated in the Dek-A-Tube press is the Goss continuous feed inking arrangement for maintaining uniformity of color at all speeds of the press. Fountain adjusting screens are spaced one for each column across the width of the fountain. The knife plate can be removed for cleaning when color is to be produced. A feature of the press is the compression type of plate lockup operated by a small bullhorn wrench.

Cast streamlined guards protect all gears on the drive side of the press. Flooring of ¼ in. steel plate covers the driving shaft, which is placed below the floor line. The folder of the Dek-A-Tube delivers newspaper or tabloid products to either side of the press, depending upon plant conditions.

The Goss company states that the Dek-A-Tube press is furnished complete including a stereotype plant, motor driving equipment, and blankets and roller covering. Units and folders are shipped assembled, crated on skids, to further reduce the time and cost of installation.

Ink Conditioners

GLAZCOTE and "600" are two ink conditioners announced recently by Central Compounding Co. Glazcote is designed to solve scratching problems, while "600" is a conditioner for light bodied inks. Sponsor claims that Glazcote, when added to the ink, gives the ink a tough, glossy, scratch-proof surface. Improved control of greasing, prevention of crystallization, aid in trapping, elimination of picking and halftones kept clean and open, are claimed for the "600" conditioner, when used with light bodied inks.

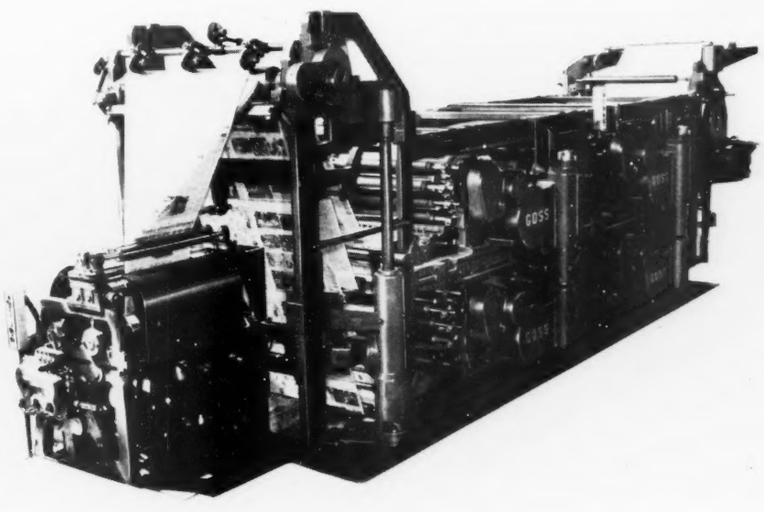
Plate Mounting Base

ANNOUNCEMENT has been made by Noporsol Incorporated of a synthetic printing plate mounting base called Basol. Of use for mounting halftones, electros and shell casts, Basol is available in page size at any desired height. It also is available in the rough form which allows newspapers to do the finishing. Sponsor states that no special equipment is needed for this operation as Basol can be shaved or cut to the desired size.

Plates are mounted on this base material by adhesive or tacking. It is claimed Basol has rolling pressures of 2500 lbs. per sq. in. without distortion or change in dimensions, and is 90 per cent lighter than stereotype metal.

The sheets of the plate mounting base of various block heights are available in different colors to facilitate recognition. Manufacturer states it is important to refrain from using type washes containing Benzol or Toluene on this material. Also, constant heat application in excess of 150 deg. F. is not recommended.

Half-size Galley Cabinets — Designed to mount on top of regular Hamilton galley cabinets to increase the total cabinet capacity without any increase in floor area, are two half-size galley cabinets announced by Hamilton Mfg. Co. Each of the half-size cabinets takes 48 galleys in four tiers and has an overall height of 20 in. When mounted on top of a regular Hamilton galley cabinet, the overall height of the combination is 58½ in. Half-size galley cabinet No. 13540½ accommodates 8¾ in. by 13 in. galleys and fits on top of Hamilton Galley Cabinet No. 13540. Half-size galley cabinet No. 13542½ accommodates 12 in. by 18 in. galleys and fits on top of Hamilton Galley Cabinet No. 13542.



The Goss-Duplex Dek-A-Tube Press, designed for the average newspaper in the medium size daily field, announced by The Goss Printing Press Co. The press may consist of any number of units up to a maximum of 48-page capacity.

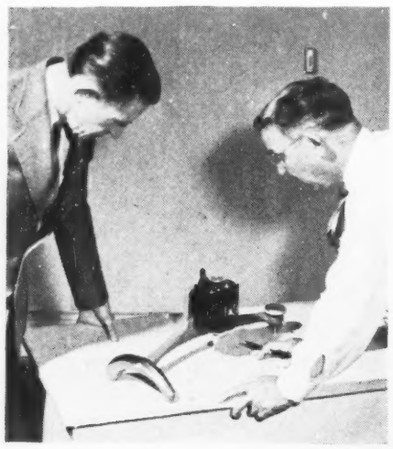
Folding Machine Counter

DESCRIPTIVE of the Wizard Electric Counter and Actuating Switch for taking the sheet count on all types of folding machines, is a 4-page bulletin issued by the Production Instrument Co. The counter operates by taking the count either from the sheet as it passes through a fold plate or from the folded piece as it is delivered to the stacker. Sponsor states the instrument may be mounted either on or off the machine and counters for a group of machines may be mounted together if desired.

An important part of the counting unit is the actuating switch which relays the electrical impulse to the counter. An impact of less than an ounce operates the arm of the switch, claims the manufacturer. The two-color bulletin illustrates the various locations of mounting both the switches and counters on folding machines. The complete counting unit consists of the counter, actuating switch and portable Y cord.

Bench Model Router

PIONEER-TOLEDO Corp. has announced the Model B Bench Model Router designed to handle the full range of flat stereos, plates, electros, slugs and tint blocks by means of a wide variety of bits and cutters. Sponsor claims the three-point support of the router



F. S. Young, President of Pioneer-Toledo Corp (left), and Edwin W. Fuerst, industrial designer, shown viewing the Bench Model Router which they designed.

permits moving the machine over the work being routed without scratching or riding.

Two support points in one end of the frame have been designed as a handle, affording a grip for the operator's left hand. The third support point, on the right side, is an adjustable handle screw which changes the cutting depth of the router or lifts it free of the work.

In operation, the work is clamped solidly on a bench by means of a workholder supplied with the router. The Model B is placed to straddle the work and the cutter lowered to the depth desired with the handle screw. By means of a special cutter the router may be used for type high planning. The motor which is mounted in the center of the one-piece frame, operates on a.c. or d.c. current and uses 110 v. current from any light socket.

Color Separation Guides

A SET of Kodak Color Separation Guides, designed to help the graphic arts technician and the advanced photographer in color separation work has been placed on the market by the Eastman Kodak Company.

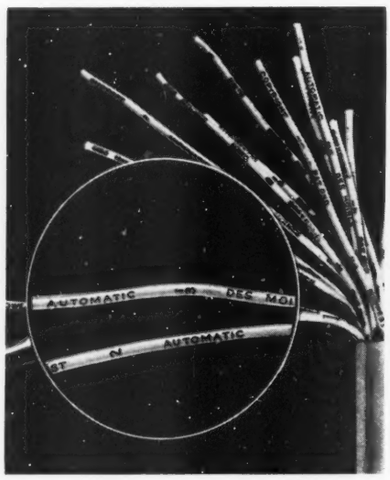
The Kodak Color Control Patches included in each Kodak Color Separation Guide set have a black patch and three color patches matching process ink colors. The black patch, in separation work, is used for black-and-white comparison only. The three process color patches, however, are used as color separation balance controls for the red, blue and yellow separation records. In correctly balanced color separations, the black-and-white density of the separation negatives or positives can be quickly and accurately established with a densitometer by the operator to determine whether or not exposure and development times have been properly figured.

As a control of the reproduction of tone gradation in color separation work, the Kodak Gray Scale is an invaluable aid. It is also extremely useful in various masking methods of color reproduction.

Kodak Color Separation Guide sets are supplied in two sizes—large, approx. 3 in. by 14 in.; and small, approximately 2 in. by 7 in. overall. They can be purchased from any Kodak dealer.

Wire Identification

MIDWEST Automatic Control Co. has announced an insulated wire for electric controls which is identified for installation and trouble-shooting by numbers. Called Magic Wire, each wire has its code number im-



Magnified view of Midwest Automatic Control Co.'s Magic Wire which is identified for installation and trouble-shooting by numerals imprinted in bright red.

printed in bright red at inch intervals on the yellow insulation.

Sponsor claims the numerals on the wire do not wash or wear off, nor become discolored with age. Terminals can be numbered to correspond with the numerals on the wires to aid in installation and trouble-shooting. There is no limit to the number of different numerals available. Available in No. 16 solid wire with plastic insulation. Other sizes and types, and any specified brands of wire are available on request.

Newspaper Color Ink Book

TWENTY-FOUR ROP colors and Standard ANPA and Metropolitan Group Process Inks are illustrated in a 30-page newspaper color ink book issued by J. M. Huber Corp. *Newspaper Colors* is printed on 32 lb. newsprint and spiral bound for reference. A 9 in. by 14 in. page is devoted to each of the 24 Huber ROP colors, illustrating both solid and halftone printing results. Four-color Ben Day engravings demonstrate color trapping with ANPA and Metropolitan Group process inks.

Vibration Control Bulletin

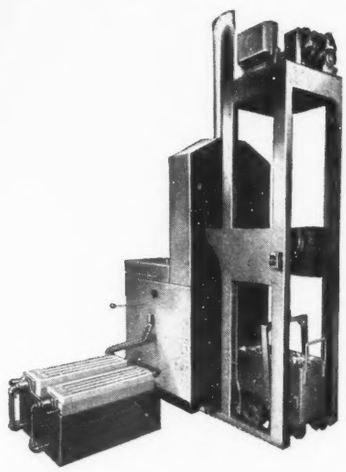
TYPICAL equipment installations calling for vibration, shock and noise isolation are illustrated in a 4-page bulletin, LK551, recently released by the Korfund Company. Six sizes of isolation mountings are described, all utilizing steel springs as the isolating medium together with resilient snubbers to absorb lateral thrusts. Loading range is from 75 lbs. to 12,000 lbs. per isolator, and dimensions are tabulated for each type. All have adjustable bolt to hold a machine in place and to provide a means for leveling the equipment.

The sponsor claims the vibro-isolators enable the placing of machines where they belong in the plant layout with savings in material handling time and costs, and with increases in production. Other advantages claimed are improved working conditions, lower building and machine maintenance, reduced foundation costs, and reduced work spoilage.

Meltevator Announced

AN automatically operated device for loading metal remelting pots called the Meltevator, has been announced by Nolan Corporation. Sponsor states the device is adaptable to most any standard metal remelting pot. Standard 400 lb. capacity scrap trucks are used.

In operation a loaded scrap truck is rolled into the Meltevator. The operator



The Meltevator, an automatic metal remelting pot loading attachment, shown attached to a Nolan 2 T. Remelt Furnace.

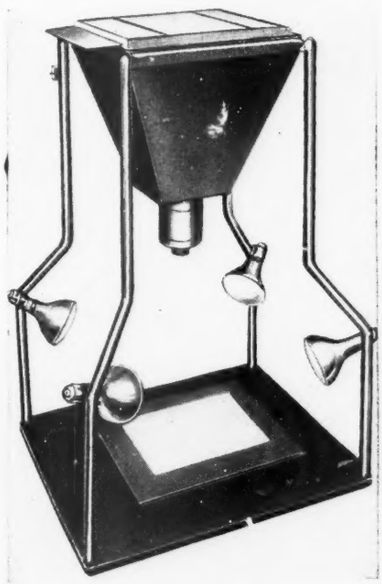
presses a button which causes the truck to be raised to the top of the furnace and automatically dump its load into the pot. The return button is pressed and the truck then rides down to starting position to be rolled away. Another truck is then brought into position to repeat the cycle. Sponsor claims the entire operation requires 30 sec.

The Meltevator is 30 in. deep and 28 in. wide. Overall height with the power mechanism mounted on top is 9 ft., 3 in. Where head room is limited, the driving mechanism can be taken from the top and mounted on the wall. Overall height is then 8 ft., 10 in.

Duplicating Process Camera

DESIGNED for use in the small offset press plant, a Kenro Duplicating Process Camera has been announced by Kenro Division, Beattie Process Camera Corp. The camera is intended for use in making plates for Davidson and Multilith presses.

Manufacturer states negatives produced in this camera are burned in di-



rectly upon the paper, plastic or metal plates. With the camera, any copy printed on both sides, paste-ups or layouts can be reproduced.

While designed for same-size work, the camera can be made to enlarge or reduce 10 per cent to make copy fit.

Non-breakable halftone contact screens are available in 8 in. by 10 in. size for 9 in. by 7 in. max. halftone.

If darkroom facilities are not available, a desk top cabinet type darkroom unit can be furnished. This unit permits all camera unit operations under ordinary room light—from loading through developing.

Negative film holder accepts film up to 11 in. by 14 in. size. Camera operates from 115 v. light plug. Machine occupies 30 in. by 36 in. on the floor.

Industrial Relays

STOCK-TYPE industrial and general purpose relays are listed in Catalog D-20A issued by Ward Leonard Electric Co. The colorful catalog illustrates and describes the various types of relays, gives contact ratings, coil specifications, sizes, current list prices, and other data on a.c. and d.c. units. It includes Sensitive Relays, Midget Metal Base Relays, Heavy Duty Midget Relays, Midget Magnetic Relays, Heavy Duty Power Relays, Thermal Time Delay Relays, and Motor Driven Time Delay Relays. General information on the function of relays and the construction of Ward Leonard Relays is also contained in the catalog.

Preventive Maintenance Control

PREVENTIVE maintenance of machines and equipment and the record control system needed to administer such a program, is the subject of a bulletin issued by the Systems Div. of Remington Rand, Inc. Systems described and illustrated in the colorful, 6-page bulletin, are used to prevent interruption of production schedules; to increase operating efficiency; to prevent breakdowns in delivery promises; and to reduce cost of manufacture.

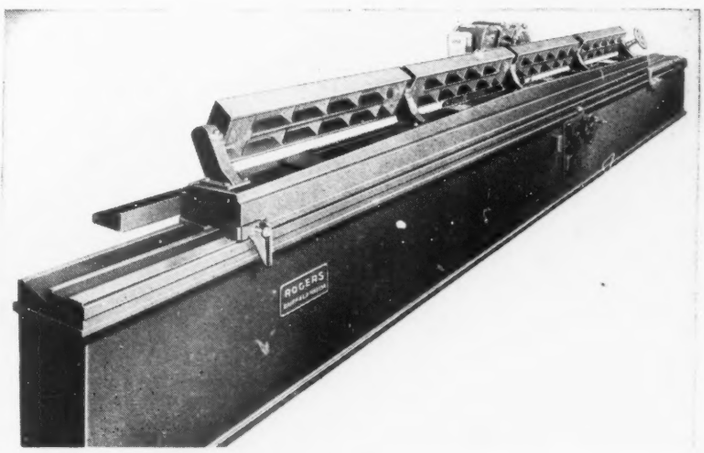
The system is based on a procedure which prompts scientific inspection of machines, so as to curtail emergency repairs and facilitate discovery of that point in the performance of any machine where the law of diminishing return sets in. The bulletin also outlines how preventive maintenance records may be combined with property records to insure that the right amount of equipment is on hand at all times and maintained in top operating condition. A section is also devoted to inventory systems used to control stocks of replacement parts and operating supplies.

Self-Closing Drum Cover—The Protectoseal Company has announced a self-closing drum cover which can be fastened to any used 30 or 55 gal. drum for use as a fire-safe waste container. Sponsor claims that if the temperature within or surrounding the drum reaches 160 deg., a fusible link melts, releasing a spring loaded plunger which closes the cover. Constructed of heavy gauge steel, the cover is available in the 30 gal. and 55 gal. sizes.

Revolving Paper Roll Grab—For handling and stacking of newsprint rolls or other types of tightly rolled cylinders in a revolving paper roll grab announced by the Hyster Company. Sponsor states the device can grip rolls either vertically or horizontally and turn them to the opposite position and is available for the Hyster "40" (4000 lb. capacity) lift truck. Rolls ranging in diameter from 28 in. to 40 in. may be handled by the standard revolving grab. Hydraulically controlled, the device squeezes its load by means of two steel arms. One tine has a curved metal surface held in a fixed position, while the other is flat, moveable and rubber-faced to prevent tearing.

Aniline Ink Guide

A COLOR guide to aniline printing inks for cellophane, entitled *Excellopake Inks For Cellophane*, has been issued by Bensing Bros. and Deeney. The guide contains 20 cellophane pages showing different two-color combinations of BBD Excellopake inks, including gold and silver. These inks are claimed to afford opaque, uniform coverage on all types of cellophane and other plastic films. Other features claimed for the Excellopake inks are that they do not chip or crack, have light resistance, do not bleed in water and are safe for use on food wrappers.



Heavy Duty Knife Grinder — Designed to handle any heavy chipper knife, shear blade, paper cutting knife and doctor blade up to 220 in. length, is a straight knife grinder announced by S. C. Rogers & Co. Model No. 220 is 28 ft. long, weighs 7 T., and is equipped with two motors. One motor of 15 h.p. is used to handle the 20 in. segmental grinding wheel and the other of 5 h.p. guides the traverse carriage. Extra wide 5 in. "V" ways in base and carriage of the grinder absorb grinding pressures, claims the sponsor, and permit heavy cuts and fast feeds without vibration. Slotted knife bars are 10 in. wide. The model is also available in 90, 100, 110 and 134 in. sizes.

Photoengravers Are on the Ball With Technical Talks and Exhibits

CONSIDERABLY in excess of the number of member plants, there were 747 persons registered at the recent convention of the American Photoengravers Association. The convention was held at Fairmont Hotel, San Francisco, Monday, Tuesday and Wednesday, September 12, 13 and 14. It is not the intention of *Printing Equipment Engineer* to present a summary of the entire convention proceedings, but rather to pick out some of the highlights for our readers.

MANY printing executives, until recently at least, long have regarded the photoengraving industry as one steeped in tradition. In other words, like a number of other industries, it has been a craft industry for many years, the workers of which were loath to adopt new methods of producing photoengravings. We don't like to think that the changed attitude toward new methods has resulted from Old Man Fear because competitive platemaking industries have grown startingly in annual volume, nor even because the cost of the end product soared all out of reason with the value of the product itself, thus creating customer resistance.

Printing Equipment Engineer's interest in attending the 53rd annual convention of the American Photoengravers Association in San Francisco last month was motivated really by wanting to hear the convention speakers and to talk to a number of photoengravers to find out if some of the users of their products are justified in critical comment about engravers' complacency. This may seem to be a strange statement to make. The photoengravers are a closely knit group. Dominantly, they are eager to simplify and improve the processes, a considerable number of the membership is financially supporting scientific research, equipment manufacturers have announced many recent improvements, and the association also permits equipment manufacturers opportunity to address the convention to explain the how and why of new processes, equipment and methods. If any criticism could be directed toward the photoengravers it is that although they are extremely progressive the "outside world" isn't kept informed. Somehow the news doesn't reach a considerable section of those who purchase their products.

Electrolytic Etching of Copper for Photoengraving

J. Homer Winkler, Technical Advisor, Battelle Memorial Institute, and Executive Director of Photoengravers Research, Inc., Columbus, O., reported upon *The Electrolytic Etching of Copper for Photoengravings*, at Battelle. This is the fourth year Battelle has done research work for Photoengravers Research, Inc. He stated originally this subject was selected for research because it is the most serious limitation on the introduction of extensive improvements in the production of photoengravings. When a photoprinted metal is etched chemically, or electrolytically, etching takes place to the side, as well as down into the metal. The proportion of side etching to vertical etching varies according to the methods, solutions, and equipment used, for different tonal densities of screened subjects, and differs between line and screened subjects. Thus, dot etching and retouching of negatives are not practicable, because allowance must be made for the color loess that results from etching. Corrections are made on the etched plate.

During the investigation, experimental techniques and evaluation methods were developed. Subsequent plant trials were made to verify the results obtained in these experiments. The ratio of vertical etching to side etching is expressed as the etch factor. An etch factor of 3.0 indicates that in obtaining a vertical depth of etch of 0.003 in., the etching progressed 0.001 in. to the side at the surface of the metal.

Every known method of removing metal was investigated. The only commercially practicable methods were found to be chemical and electrolytic etching.

Ferric Chloride Etching of Copper

During the investigation of chemical etchants for copper, none offered promise of being more effective than ferric chloride. The ferric chloride etching of copper was thoroughly studied. The effect of each variable, such as the Baume (concentration), copper content, presence of free acid, temperature, agitation, and plate position, was determined.

Mr. Winkler related that a simple device was developed for quickly determining the copper content of a ferric chloride etching solution. This instrument, called the PER Copper Colorimeter, is obtainable from Modern Photoengraving Publishers.

The optimum conditions for ferric chloride etching were recommended and easy methods for control were established during this study.

All of the pertinent results of this investigation have been published in book form by Photo-Engravers Research, Inc. The book is titled *The Ferric Chloride Etching of Copper for Photoengravings.*

Electrolytic Etching of Copper

Mr. Winkler stated that no method of preventing sidewall etching without actually applying a resistant material to the side walls is known. However, recent investigations have shown that by means of electrolytic etching it is possible to

(*Continued on Page 60*)

Informal Groups are Pictured in left to right order at the Fairmont Hotel, San Francisco, During the APEA Convention Held on September 12, 13 and 14, 1949.

1.—O. F. Duensing, Advertising Mgr., Vandercook & Sons, Inc.; Homer L. Green, Vice President and Manager, Wilson Engraving Co., Dallas, Tex.

2.—Albert R. Bourges, President, and Jean Bourges Mayfield, Bourges, Inc., New York, N. Y.

3.—At the Photoengraving Production Panel, these men each addressed the convention and replied to questions from the floor. J. Homer Winkler, Technical Advisor to Graphic Arts Dept., Battelle Memorial Institute, Columbus, O., served as chairman. (From left to right, they are identified as follows: John McMaster, Graphic Arts Sales Div., Fastman Kodak Co.; Chairman Winkler; L. C. Beringer, Color Photographer, San Francisco; Ernest Jones, Graphic Arts Corp. of Ohio, Toledo, O.; Archie Nowland, California Ink Co., Inc., Los Angeles; C. A. Rebitt, Supt., Walker Engraving Corp., San Francisco. Not present at the time this picture was taken, but a member of the panel, was E. O. Vandercook, President, Vandercook & Sons, Inc., Chicago.

4.—E. Johnson, Santa Ana Engraving Co., Santa Ana, Calif.; Sam B. Aanson jr., Sales Mgr., Chemco Photoproducts Co., Inc.; A. Butterworth, Los Angeles; Ed Schroeder, Los Angeles Times-Mirror Press; W. J. Wilkinson, Beverly Hills, Calif.

5.—Norman Wrigley, The Wrigley Co., Atlanta, Ga.; Harry Alering, Manager, George Littleford Co., Inc., Cincinnati, O.; Earl R. Wrenn, Durham Engraving Co., Durham, N. C.

6.—Al Schlening, Dixie Engraving Co., Savannah, Ga.; M. George Martin, Production Mgr., and Charles L. Bronger, Photoengraving Supt., Louisville (Ky.) *Courier-Journal* and *Times*.

7.—John T. Wrigley, Supt., Photo Process Engraving Co., Atlanta, Ga.; Thos. L. Cooper, Manager, Southern Engraving Co., Atlanta, Ga.

8.—Al Rosene, Production Mgr., St. Paul (Minn.) *Dispatch* and *Pioneer-Press;* Arch Dixon, Photoengraving Supt., Oklahoma Pub. Co., Oklahoma City, Okla.; George Marsh, Photoengraving Supt., St. Paul *Dispatch* and *Pioneer-Press*.

9.—Walter J. Mann, Convention Publicity Committee Chairman; Jane Adams; C. Forkin, Secretary to Frank J. Schreiber, APEA; A. E. Benson, Executive Secretary, Convention Committee; Frank J. Schreiber, Executive Secretary, American Photo-engravers Association.

10.—Roy Blanks, Dallas, Tex.; George Huebscher and George Dietrich, Minnesota Engraving and Color Plate Co., Minneapolis; Mrs. P. J. Raabe; George Gibson, American Electrotype Co., San Francisco; P. J. Raabe, President, American Engraving Co., Minneapolis.

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Special Composition is Simplified in Newspaper Display Advertising

IT'S GOING to take a little explaining to discuss the value of a new composing room tool before getting down to actually describing the tool itself. The explanatory remarks are necessary to explanation of the time-saving benefits to be obtained.

Execution of a large amount of newspaper advertising composition is a peculiar technique in itself. In many advertisements, angled lines, lines set into mortises, and lines intertwined among tenuous illustrations are required.

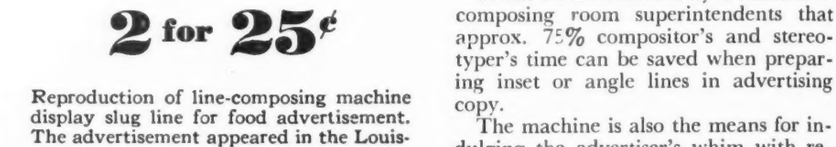
Another element which complicates this type of composition is that the ad alley compositor frequently is called upon to insert type lines, key numbers and/or price changes in existing photoengravings, electrotypes, plastic cuts, and type high and shell-cast stereotypes.

These particular operations call for a high degree of skill. There is also the time element to be considered because in newspaper publication the copy and cuts virtually are "thrown at" the composing room for quick publication. Two such types of ads are used by food and drug stores.

Every newspaper composing room has at least one, maybe more, compositors who are adept at working with base material cut to angles for mortised insets. Even with skilled compositors, this kind of composition is expensive. A special technique along with the skill to do the work is required. In some drug store advertisements there may be as many as 40 mortised inserts to be positioned inside photoengraved or shell cast balloons. To complicate the matter, the cuts for a single advertisement may consist of 16 ga. zinc with shell cast stereotype illustration in combination.

The difficult part of such composition is in preparing the base to accommodate the mortises for the different thicknesses of cuts. Thus, if there are one or more mortises for 16 ga. photoengravings, a base area 0.851 in. high must be prepared with the mortises at the proper angles as indicated by the cut in the layout. If a portion of the illustrations are stereotype shell casts (usually 0.152 in.), then the base height must be 0.764 in. high. The base may be Monotype, Elrod, stereotype flat cast steel or iron. The 0.002 in. minus difference between base and stripped slugs is taken up by the double-coated Scotch tape or equivalent adhesive—more or less according to thickness of the fastening medium.

There are a number of ways in which the compositor can transfer angles and the position of the type lines from copy to the actual composition. Blueprints of the copy have been used, principal mortises may be transferred by scribing mortise positions directly on the base, or the cut or cuts can be placed in a galley upside down, the base sections supplied and the mortises filled in with type composition. Other and older techniques have been used, such as pouring molten line-composing machine type metal from a hand ladle into the interstices. However, the molten metal technique has been abandoned except in the case of curved type lines.



Reproduction of line-composing machine display slug line for food advertisement. The advertisement appeared in the Louisville (Ky.) *Courier-Journal* and *Times*. The word "for" was stripped from a slug approx. 0.041 in. thick and was fastened in position on the display slug by means of Scotch tape. The special alignment of the word "for" in a number of instances in the advertisement pleased the advertiser.

In newspaper work, illustrative copy and/or cuts are furnished by the advertiser. In many instances, photoengravings must be made. In others, both stereo shell and type high casts must be made from mats. In still other instances, unmounted electrotypes and plastic plates may be furnished.

In coping with this particular type of composition, the newspaper is expected to accept anything in the way of copy and/or cuts in its composing room.

Quite often, a plate may be furnished in which a price or date change, or perhaps a key number is indicated. This calls for mortising both plate and the base upon which the plate is mounted in the page form. In instances like this, use of steel or iron base is eliminated.

In discussing the mortise-inset style of newspaper advertising composition, it is likely that its vogue will endure. It is also likely that the present methods of constructing angular boxes containing considerable quantities of type matter will not be replaced unless some photographic process is used. On the other hand, where unusual effects are desired by the advertiser with respect to angular lines and in instances where time can be saved, the recently introduced machine, called the Morrison Slug Stripper, is a useful production tool.

It has been estimated by a number of composing room superintendents that approx. 75% compositor's and stereotyper's time can be saved when preparing inset or angle lines in advertising copy.

The machine is also the means for indulging the advertiser's whim with respect to engraving-type combinations without imposing a labor penalty in the composing room. A composition specialist is not required to use the machine. The machine is also an eligible candidate for isolating this type of work to one machine and thus avoid tying up a saw-trimmer which may be used for regular work.

The slug stripper is a simple machine. Briefly, it consists of a hard steel saw blade (formed cutter), and a sliding work table, similar to a composing room saw-trimmer. The slug stripper cuts the letter characters from line-composing and Ludlow slugs, as well as from Monotype and foundry-cast type, and strip-cast rules and borders. It trims the printing elements to any height wanted—from 16 ga. (for photoengravings) to 11 pt. thickness (approx. 0.152 in.) for electros and shell cast stereos. Its work-holding clamp will hold any slug from 1 pt. to 72 pts. thickness, or from a single character to 30 picas long.

The stripped slug or type bearing the letter characters is then laid directly upon the base supporting the plate in proper position and fastened to the base by means of double-coated Scotch tape. In the case of a wood-mounted electrotype, and if the shoulders on the stripped slug

(Continued on Page 44)

Miniature Examples Showing Utility of Slug Stripper in Specialized Newspaper Display Advertising Composition—A considerable amount of newspaper advertising composition within recent years has taken on a specialized form. Some examples are shown in the illustration on the opposite page. The slug stripper is a useful composing room tool for assembling this kind of composition.

Many newspaper advertisements consist of zinc photoengravings and/or stereotype shell and type high illustrative casts. In the case of the engravings and the shell casts, it is necessary to provide either stereo or composing machine-cast metal base. As will be seen by the illustrations, considerable work upon the part of the ad alley assembler is required to cut-in or mortise the bases upon which the cuts are mounted to provide "holes" into which the type slugs are to be inserted.

By means of the slug stripper, mortising and angular fitting of bases is eliminated. The slug stripper will cut slugs down to zinc thickness or stereo shell cast thickness. The slug lines then are fastened to the metal base with two-sided Scotch tape.

In the section of the advertisement at upper left, the words "Dresses" were stripped from slugs and laid on the base at an angle.

In the section of advertisement at upper right, C. Frank Mann, Composing Room Supt. of the Louisville (Ky.) *Courier-Journal* and *Times*, stated that an advertisement 8 col. wide consisting of 30 photoengraved stars with inset type lines as shown was handled by stripping the slugs for company names and laying them in the stars in the advertisement.

Second from top, left side, is shown section of an advertisement containing a number of balloons. The type lines inside the balloons were stripped in without mortising the base underneath. Balloons ranged from $\frac{5}{8}$ in. to $1\frac{3}{16}$ in. I.D.

Second from top, right side, is a 2 col. advertisement. The two lengths of 6 pt. border rule were placed at an angle after being stripped.

An unusual effect is secured by placing the stripped slugs at an angle in lower right advertisement.

At lower left corner is shown a furniture advertisement with short stripped slug lines placed on the base and fastened with Scotch two-side tape.

summer store hours: **9:00** to **5:30** daily; **9:00** to **5:00** Saturday; not open evenings

T. A. Chapman Co.

DRESSES

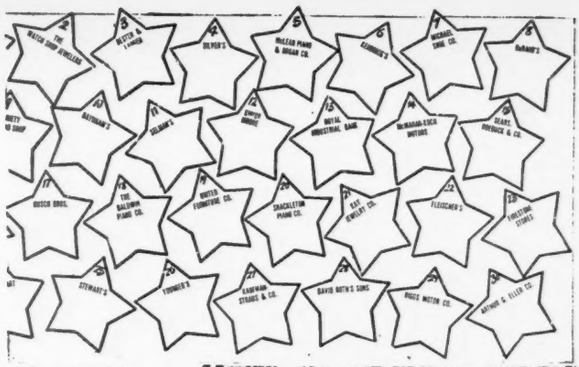
SWEEPING DRESSES

dresses DRESSES

Dresses DRESSES

DRESSES

CLEARANCE



Tuesday, after a two-day recreational period

READ OUR INTERESTING FRONT PAGE AD MONDAY

NO CASH FOR VETS

$63 MONTHLY CARRYING 25-year Mtgs. for Vets

Bendix Washer · G. E. Refrigerator · Expansion Attic · G. E. Range · Colored Tiling · Oil Burner Radiant Heat · Huge Ventilated Closets · Log-Burning Fireplace

ONLY

TAGE CLUB

EXCELLENT CATERING for Weddings, Banquets and Parties

TING OUTSTANDING HANDISE VALUES

Southern Fried Chicken

CLOSED MONDAYS IT'S THE MODERN WAY

FOOD BUYS

FRIDAY AND SATRDAY *SPECIALS*

HEAVY STEER UNDERCUT ROAST 55c lb.

SWIFT'S BONELESS VEAL ROAST Chicken Tender lb. 49c

LEAN CUT PORK CHOPS lb. 49c

SHORT SHANK LEAN SMOKED SHOULDERS lb. 39c

FRESH NATIVE CHICKENS lb. 39c

LEAN FRESH GROUND HAMBURG lb. 39c

Bay State Fur

SENSATIONAL

Special Purchase Of Fur Scarfs For Easter

At The Lowest Prices In Years

Squirrels 6 Skins $45

Kolinskys 5 Skins $49

Karl's SUPER MARKET

330 E. JEFFERSON ST. and 329 E. LIBERTY ST.

Pure Grany Hog LARD 4 Lbs. 49¢

DOMINO SUGAR 5 Lbs. 49¢

MAXWELL HOUSE COFFEE Lb. Bag 49¢

3 CANS CORN

3 CANS PORK & BEANS All Sts. 49¢

Veal CHOPS lb. 49¢

Tender Loin or Club STEAKS 49¢

Cello. Wrap

49¢ W

Isabelle Ramey

Mezzanine Union Arcade Third and Brady

$277 Was $500 Longfellow Brocatelle

$350 Was $695 Down Cushion

$57 Was $139.50 Girard Rose

$64 Was $139.50 English Lounge

$44 Was $115 Gold French Provincial Down Cushion

$166 Was $429.50 Solid Mahogany

$437 Was $875 Purple Boucle

or MORE

Calling All Girls!

From Age 14 to 80!

From Size 7 to 15!

From Size 10 to 42!

From Size 14½ to 24½!

And Still We Lead The Fashion Parade Bringing You These Hand-Picked Ramey Quality Fashions

Photoengravers are Equipping To Meet Process Competition

THERE were 33 exhibitors at the recent convention of the American Photoengravers Association, Fairmont Hotel, San Francisco, September 1949. While it is not possible to discuss individually all of the exhibits in this article, our reporter has entered into a somewhat general discussion. The equipment and supplies items shown by the various manufacturers fitted hand in hand with the general theme of the convention program and, consequently, with the general mental attitude of the photoengravers attending the convention.

The selection and preparation of copy for reproduction purposes has never received enough attention. Means of getting into the copy the result desired by the buyer, so that a complete understanding of what is wanted is completely visual from the start, has long been sought by photoengravers. In process color work, the Eastman Kodak Co.'s Flexichrome Process is a valuable contribution.

Flexichrome Process

One of the earliest technical problems in photoengraving was the conversion of a black and white photograph into a full color process job. Now, with the Flexichrome Process, this work will no doubt revert from one of a highly skilled etching process to one of a semi-art and photographic method. In this method illustration in color from black and white copy has become a matter of copy preparation. It is not a complicated process and the effects that may be obtained with it really are startling.

Briefly, the Flexichrome Process of converting a black and white print into a full color print is one of photographing the black and white original to the desired size on a sheet of special thin stripping film. The film is developed and fixed and is then put through baths which bleach out the silver image, dye and swell the film gelatin surface, after which the thin film is stripped on to a suitable paper support. This consumes about 15 min. photographic work. Color is applied by an artist in a manner similar to coloring a photograph though the color is actually blobbed on. It might be said that the coloring of a Flexichrome print is a matter of good color selection rather than skillful application. Because in the processing of the film, the gelatin has taken on various heights or thicknesses of gelatin, these varying thickness of gelatin absorb the color in varying amounts and the work of coloring is virtually simple. A color may also be changed after it is applied and retouching with color art mediums may also be used on the print for improvement of color effect.

This new conversion medium has many advantages besides producing a full color print from a black and white one. Flexichrome prints may be made in sizes to fit layouts and groups and mounted together in complete layout form. Thus assembled, many extra negatives and resulting extra stripping time charges may be eliminated when many copies of different reduction or enlargement factors are used together. Another advantage is that the result desired in the process plates may easily be put in the copy, thereby reducing misunderstandings and delays.

Flexichrome prints may be made from color transparencies as well as from black and white copies. In this use, off-colored, weak and very dense color transparencies may be converted into improved color copies by the great latitude of the process.

Bourges Colotone

Following the thought of copy preparation, the Bourges Colotone Sheets is another method of getting the result desired in the copy. Colotone is also a simplifying method of making the plates. It is widely used for newspaper, magazine, and commercial color plates where tints and decorative effects are used. The Colotone Sheets in colors of a wide variety, are laid over the copy. Areas not wanted in color are erased with a special stylus, easily and rapidly, leaving a visual effect of how the job will appear on the color proof. The Colotone Sheet is used for copy from which to make the color plate, one or more. Colotone has many wide applications and is a worthy addition to copy preparation and platemaking in photoengraving.

Kemart Process

Fluorescent light applications to art and photographs is not new but have made advancements worthy of the principle. Through the use of materials having both fluorescent and non-fluorescent qualities, effects may be obtained photographically that would otherwise require hours of skillful handwork. The fluorescent processes are rapid and simple provided the artist has properly done his part of the job. With the Kemart Process, highlights and light areas may be accentuated in the halftone reproduction by the application of the Highlighting White to the copy by a retouching artist. This retouch white is used in the same manner as the regular retouch white and after application it has the same appearance as the regular product. In the negative making operation of photoengraving, the Kemart White areas emit fluorescent light rays which accentuate the highlight areas where they have been applied.

Other uses for the Kemart Process are, the outlining or silhouetting of copy. In this the Kemart White is applied by an artist around the edges of the subject in the same manner as regular retouch white. Again, the Kemart White acts in the manner above described but with proper camera exposure, the halftone dots in the Kemart White areas are dropped out. This leaves a complete silhouette effect on the halftone negative. Vignettes, highlight halftones and realistic wash and pencil drawings may be

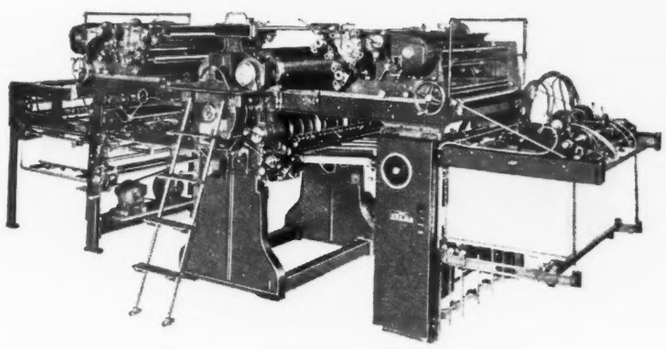
PLATE CLEANING PRIOR TO COATING

(Abstracted from address entitled *The Electrolytic Etching of Copper*, by J. Homer Winkler, presented before the 53rd annual convention, American Photoengravers Assoc., Fairmont Hotel, San Francisco, September 1949.)

THE sensitization, exposure, and development of plates has not, up to the present time at least, been one of the major subjects for investigations of Photo-Engravers Research, Inc. However, an interesting method is being used in the experimental work which differs in some respects from that used in practice for cleaning copper plates before coating. The buffed copper sheet is first cleaned electrolytically in a six per cent trisodium phosphate solution, which is moderately alkaline. The copper is made negative while an iron sheet is used for the positive electrode. Electroplaters have known for years that this is one of the best methods of obtaining a clean surface. The buffing compound is removed from the surface of the metal, even from the tiny pores. After rinsing, the copper is immersed in a dilute ferric chloride and salt solution to give just enough of an etch so that the plate will wet uniformly. The etching should be so slight that the plate has only a "foggy" appearance rather than the dull appearance caused by further etching. After a water rinse, a dilute muriatic acid rinse, and a final water rinse, the surface is ready for the sensitized coating. The advantage of this pretreatment is that the very smooth surface will record every detail in the negative and development will be very clean with less tendency toward scumming than with a rougher surface. Scratches caused by pumice are also avoided. If the surface is really clean at the time the top is applied, no trouble with lifting of the resist should be experienced in subsequent etching operations. Surface cleanliness is a much more important factor in determining adhesion of the coating than surface roughness.

For Today—and Tomorrow

the Finest in Black or Color Printing



Let's talk about the printing equipment you plan to install in *your* plant someday . . .
It must of course more than carry its purchase cost. It must be relatively easy and inexpensive to maintain . . . not only for the first few years, but for many years. It must be exceptionally versatile so that you can take care of *all* the increasingly various jobs that find their way into the modern printing plant.
Through high productivity and flawless printing, the equipment you buy must *attract* not only black but more color business and *keep* it.
The Cottrell 2-color Sheet-fed Rotary is the one press most likely to meet all your requirements. It is built in four sizes to meet the needs of small as well as large press rooms.
Write for further particulars.

Cottrell

C. B. COTTRELL & SONS CO.
Westerly, R. I.
New York: 25 E. 26th St. • Claybourn Division: 3713 N. Humboldt Ave., Milwaukee, Wis.
Chicago: Daily News Bldg., 400 W. Madison St.
Smyth-Horne, Ltd., 13 Bedford Row, London W.C. 1, Eng.

made with the Kemart Process. The realism of the results that may be obtained with the Kemart Process are noteworthy and the stepping up of production in the making of jobs applicable to this idea is important.

Eastman Fluorescence Process

The fluorescing principle has also been applied to the making of full color process plates in Eastman Kodak Co.'s Fluorescence Process. This principle, like others revolutionary in nature, has been too slow of adoption by the trade. It is a process for obtaining a full or nearly correct color separation in the making of color separation negatives for process work.

The Eastman Fluorescence Process is another copy preparation process. In use, the artist uses the Eastman colors, white and black, which are made in a sufficient variety and characteristics to do nearly any job, instead of the regular art water colors. Following simple procedures, the artist completes the drawing or sketch, using Eastman mediums entirely. When the sketch or drawing is photographed to make the four color process negatives, special filters are used in the lens, and a set up around the camera to allow a mixture of visible and ultraviolet light is used. In this procedure the action of fluorescing properties in the Eastman materials is put to work to better separate the colors on the various negatives. The degree to which this process works is commendable, actually in many cases entirely eliminating any retouching or etching to fully separate the colors into the well known group—yellow, red, blue and black.

Adoption Slow

The fluorescent idea of copy preparation to obtain effects photographically that otherwise would require hours of skillful handwork, is real and good in every way but one. The success of working the various processes, based upon the idea of fluorescence, is principally dependent upon how well the artist does his part of the work. Artists are well known for being critical of the reproduction of their work but a number of them will go to work hand in hand with those who reproduce their work. When properly handled by the artist, fluorescing principles of copy preparation are valuable additions to the photoengraving process. More engravers are using this method each year.

Cameras and Accessories

The modern process camera is an all-steel job with all operations controlled. This control goes into focusing copy; indicating the correct lens diaphragm (opening); exposure time; screen distance from plate or film; light source, angle and distance from subject; screen displacement when not in use; screen change from one mesh to another; light timing, on and off automatically; multiple exposure curtains; vacuum adherance for film holding and many other controlled operational features. Modern cameras have multiple coated lenses that absorb stray light rays and may be changed at will from a long, to a medium and to a short focus lens.

Grapharc Lamps

Modern camera arc lamps such as the Grapharc have motor-driven carbons, housed in a concentrating hood in which a curved silvered mirror collects and reflects the effective light, giving an effective and powerful light source with less current consumption. In this arc, current flow variations are under complete control and fluctuations of line voltage which occur at all times in any electrical lines, are easily taken care of with the turning of a dial on the current control box. This lamp is being well received in photoengraving plants. It is an innovation in carbon arc illumination for both black and white and color work.

Macbeth Lamps

The Macbeth, long-time standard illumination for process cameras, also is supplied with a motor-driven carbon arc lamp. The double-decker models, reaching far above the camera man's head when with a simple chain driven mechanism they are moved up to cover huge copy, give illumination for large direct-from-the-object negative making such as rugs and other large copy. Concentrating diffusers provide special lighting effects for certain operations in an efficient and easily operated manner.

Among this company's new products is the Color Transparency Viewer. With this instrument, a color transparency may be viewed to light comparable to nearly any visible light source, as against the sky, skylight, workroom, office window or artificial illumination of any type. This is a valuable instrument for standardizing the color impression when customer and engraver previously agree upon how the transparency should be reproduced and subsequently how well it has been reproduced.

ATF and Consolidated Cameras

The grouping of several pieces of copy of different reduction or enlargement factors into a lavout or group single set of plates is provided by the photocomposing or step and repeat exposure idea. To do this, extreme accuracy and special features in the process camera are necessary. The ATF and Consolidated process cameras have this equipment. In this method of making multiple exposures in color process work, to eliminate many separate sets of color process negatives which currently are being stripped to register to make up a layout, the several copies are photographed into exact position predetermined by a master layout. To make this clear, let us suppose we are making a yellow printing plate negative of a layout having five separate process jobs in it. Each of these five are a different reduction. The operator, with a master layout and proper camera equipment, (which must be extremely accurate in tolerance of placement and operation), photographs each of the five copies separately, through the customary blue filter, on to a single-color sensitive dry plate, in the exact position it is supposed to be in the layout. During this procedure, the camera must be refocused to comply with the particular scale of the copy being photographed until all have been shot. Then follows a change of the filter, say the green filter, to make the red printing plate negative and a new photographic plate is put in the camera. The operations that have just been performed when the yellow plate negative was made are now repeated and so on when the blue and black plate negatives are made. Masks especially designed for the job being made stop the light from reaching the sensitive plate in all areas except the one being photographed on. It is obvious that the accuracy with which this type of process negative making has to be done, to photograph each copy in its exact position so that when all colors are superimposed in proofing and printing they will fall into exact register, requires fine precision in camera equipment. While this photocomposing may appear to be a long and risky procedure, the time consumed in doing the grouping

(Continued on Page 54)

Special Composition

(Continued from Page 40)

are of sufficient area, the stripped slug may be tacked to the base.

There is another use for the Slug Stripper which on certain newspapers is a great convenience. For instance, on the Cleveland *Plain Dealer*, Composing Room Supt., Deo A. Padgett tells *Printing Equipment Engineer* that the Slug Stripper comes into play in the case of automobile and other advertisements in the classified section for the first edition. These ads may range from 2 col. width to 4 col. width. At the *Plain Dealer*, these advertisements are usually composed with a screened photoengraving at either top or bottom, or both. In case the engraving department doesn't deliver the screened cuts in time for the first edition, the display lines are cast on slug machines. The slugs are then stripped to zinc thickness (perhaps 0.003 in. or 0.004 in. allowance for the double-sided Scotch tape) and are placed on the metal base which has already been placed in the ad. For the second edition, it is a simple enough matter to remove the stripped display slugs from their base and put the screened engravings in the panels.

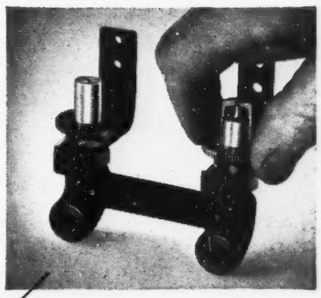
Here are more new developments from Linotype Research

To simplify your machine maintenance and operation, Linotype brings the latest in machine refinements. They are now supplied *on every Linotype being shipped.*

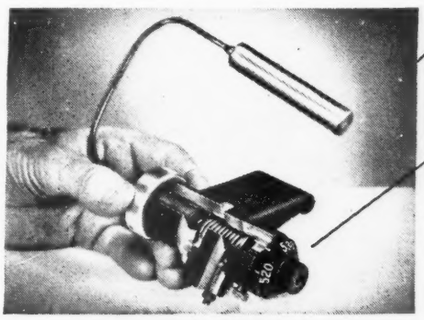
The new gas pot is equipped with separate Micro-Therm controls for both mouthpiece and crucible. New adjustable orifices on the gas inlet permit the pot to be used for any kind of gas. Also, Linotype's Micro-Therm electric pot (extra—not illustrated) has been further simplified to provide high efficiency with less attention from the operator and machinist.

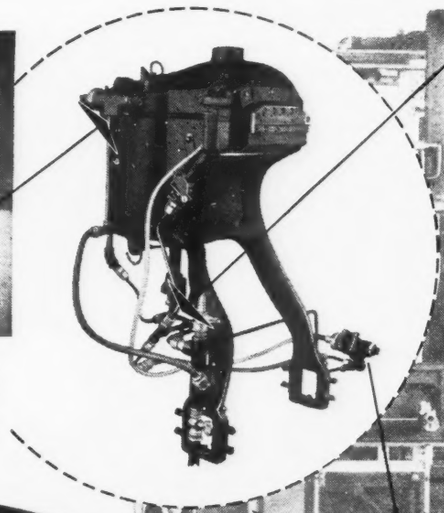
Linotype's cam-operated assembling elevator and automatic line delivery slide eliminate a machine adjustment. A single matrix can be raised in the assembling elevator without danger of twisting or falling out. The line delivery long finger can now be set for the longest line with no need for readjustment when different measures are to be composed.

And there are still more improvements on new Linotypes—all stemming from intensive research. Linotype Research works with your Linotype representative to plan more efficient composing rooms. Call or write if you want help with your long-term modernization plans.

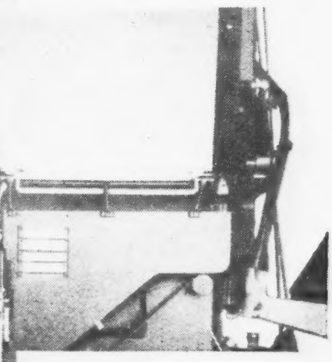


EASY ADJUSTMENT of new orifices permits pot to be quickly adapted to any kind of gas. Simple instructions show how to adjust orifices for most economical operation. The complete pot has proven itself through two years of field testing under varying conditions.

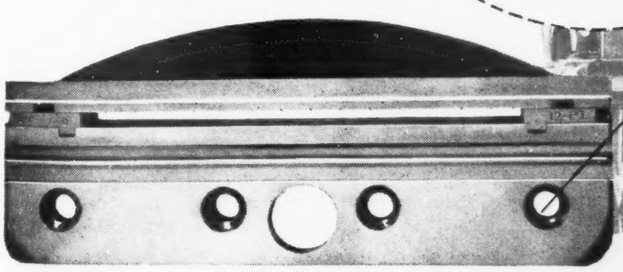




BETTER SLUGS result from more uniform pot temperatures made possible with the new Linotype gas pot. Mouthpiece and crucible temperatures can now be set individually with separate Micro-Therm controls. The automatic controls respond instantly to temperature changes of metal and mouthpiece.

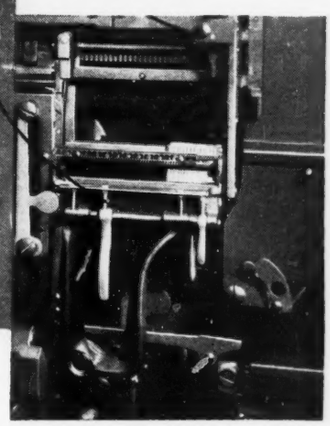


SAVE ADJUSTMENTS with improved line delivery slide and assembling elevator. The long finger need never be adjusted for different measure lines. The cam-operated elevator gate moves inward as the assembling elevator rises—prevents twisting of matrices.



TO CUT MAINTENANCE, all Linotype molds are now Linolized*. New process minimizes metal adhesion to molds. Linolized molds make ejection smoother—help cut matrix damage. Linolizing is free on all new Linotype molds.

*TRADE MARK—SURFACE TREATED



MERGENTHALER LINOTYPE COMPANY
29 Ryerson Street, Brooklyn 5, New York

LINOTYPE

LEADERSHIP THROUGH RESEARCH

Linotype Spartan Family and Times Roman

Conference Dates *(with organization names and principal officers)*

American Photoengravers Association — 1950 Convention to be held during October in Atlantic City, N. J. Dates and hotel to be announced later. Frank J. Schreiber, Commissioner, 166 W. Van Buren St., Chicago 4, Ill.

ANPA Mechanical Conference—1950 Conference to be held at Hotel Statler, Buffalo, N. Y., June 5, 6 and 7. Chairman of the Committee, Edwin H. Evers, Production Manager, St. Louis *Globe-Democrat*. Acting Manager ANPA Mechanical Dept., Vernon R. Spitaleri, 370 Lexington Ave., New York 17, N. Y.

Fifth District Craftsmen's Conference—1950 Conference to be held in Toledo, Ohio. Place and dates to be announced later. Ollie G. Fricke, Fifth District Representative, 43 West Apple St., Dayton, O.; Secretary-Treasurer, John Fisher, Superintendent, Reardon-Parshall Co., 466 Larned St., N. W., Detroit, Mich.

Great Lakes Newspaper Mechanical Conference—Hotel Schroeder, Milwaukee, January 15, 16, 17, 1950. President W. R. Coddington, Composing Room Supt., Youngstown (O.) *Vindicator;* Secretary Al. P. Oberg, Flint (Mich.) *Journal;* Arrangement Chairman J. E. McMullen, Pressroom Supt., Milwaukee *Journal;* Chairman Mfrs. and Suppliers Committee, George Morrison, Morrison Co., 125 W. Melvina St., Milwaukee 12, Wis.

Illinois Newspaper Mechanical Conference—1949 Conference to be held at Orlando Hotel, Decatur, Ill., October 8 and 9. President, Sid Scott, Decatur (Ill.) *Herald-Review;* Secretary-Treasurer, Wilbur L. Augspurger, Peoria (Ill.) Newspapers, Inc.

Intl. Assoc. Electrotypers & Stereotypers — A. P. Schloegel, Executive Secretary, 701 Leader Bldg., Cleveland 14, Ohio.

International Association of Printing House Craftsmen—1950 Convention to be held at Hotel Stevens, Chicago, September 10, 11, 12 and 13. President, Russell J. Hogan, Plant Manager, Blanchard Press, New York, N. Y.; Executive Secretary, Pearl E. Oldt, 18 E. Fourth St., Cincinnati 2, Ohio.

International Typographic Composition Association—1949 Convention to be held at Hotel Statler, Boston, Mass., October 13, 14 and 15. Frederick H. Lutz, President, Brockton, Mass.; Frank M. Sherman, Executive Secretary, 1015 Chestnut St., Philadelphia 7, Pa.

Iowa Daily Newspaper Mechanical Conference — 1950 meeting in Ottumwa, Ia. President, Howard (Red) Lee, Composing Room Supt., Ottumwa (Ia.) *Courier;* Secretary-Treasurer, Paul F. Kamler, Mechanical Supt., Clinton, (Ia.) *Herald*.

Kansas Newspaper Mechanical Conference — 1949 meeting to be held at Hotel Kansan, Topeka, Kan., October 1 and 2. President Vern Williams, Mechanical Supt., Topeka Newspaper Printing Co., Topeka, Kan.

Lithographers National Association — President, Randolph T. Ode, President, The Providence Lithograph Co., Providence, R. I.; Executive Director, W. Floyd Maxwell, 420 Lexington Ave., New York 17, N. Y.

Missouri Newspaper Mechanical Conference — Secretary-Treasurer, O. K. Hammitt, Mechanical Supt., Moberly (Mo.) *Monitor-Index*.

National Association of Litho Clubs — Secretary, William J. Stevens, 317 West 45th St., New York 19, N. Y.

National Association of Photo Lithographers — 1949 convention will be held at Hotel Statler, New York, N. Y., October 19, 20, 21 and 22. Executive Vice President, Walter E. Soderstrom. 317 West 45th St., New York 19, N. Y.; Executive Secretary, William J. Stevens, 317 West 45th St., New York 19, N. Y.

National Graphic Arts Education Association — John G. Henderson, President; Fred J. Hartman, Educational Director. 719 Fifteenth St., N. W., Washington 5, D. C.

National Graphic Arts Exposition—International Amphitheatre, Chicago, September 11 to September 23, 1950. Headquarters for National Graphic Arts Exposition, Inc., at Room 802, 105 W. Monroe St., Chicago. President, A. E. Giegengack; Secretary, S. Frank Beatty, Graphic Arts Assoc. of Illinois, Chicago. During the period, September 11 to September 23, 1950, a number of Graphic Arts associations will hold their annual conventions as follows: Intl. Assoc. of Printing House Craftsmen, Hotel Stevens, Sept. 10, 11, 12 and 13, 1950; Intl. Typographic Composition Assoc., Sheraton Hotel, Sept. 14, 15 and 16; Printing Industry of America, Palmer House, Sept. 17, 18, 19 and 20, 1950; National Graphic Arts Education Assoc., Hotel Sherman, Sept. 21, 22 and 23, 1950.

National Printing Equipment Association, Inc. — 1949 meeting to be held at Hotel Biltmore, Los Angeles, Calif. Directors meeting, November 14; Members meeting, November 15. National Printing Equipment Association, Inc. —Directors will also meet immediately following members meeting on November 15. President, R. Verne Mitchell, Harris-Seybold Co., 4510 E. 71st St., Cleveland 5, O. James E. Bennet, Secretary, 140 Nassau St., New York 7, N. Y.

New England Mechanical Conference — 1949 Conference, Hotel Statler, Boston, Mass., October 29 and 30. President, George F. Marshall, Mechanical Supt., Portland (Me.) *Press-Herald-Express*. Secretary-Treasurer, Walter C. Crighton, Comp. Room Supt., New London (Conn.) *Day*.

Northwest Mechanical Conference — 1950 Conference, Hotel St. Paul, St. Paul, Minn. Tentative dates, March 10, 11, 12. President, Joseph J. Cory, Chief Composing Room Machinist, St. Paul (Minn.) *Dispatch* and *Pioneer Press*. Secretary-Treasurer, Ralph Carson, Dunwoody Industrial Institute, Minneapolis, Minn.

Pacific Mechanical Conference—1950 Conference to be held in San Francisco. Date to be announced later. President, Fred Gross, Mechanical Supt., San Francisco *Chronicle;* Secretary for the North, Edw. N. Conley, color press foreman, San Francisco *Chronicle;* Secretary for the South, Fred J. Moyer, Los Angeles *Daily News*.

PNPA-NJPA Joint Mechanical Conference —1950 Conference to be held at Hotel Claridge, Atlantic City, N. J., April 14 and 15. Conference director, Theodore A. Serrill, PNPA Associate Manager, Telegraph Bldg., Harrisburg, Pa.

Printing Industry of America — Hotel Biltmore, Los Angeles, November 13-17, 1949. James R. Brackett, General Manager, 719 Fifteenth St. N. W., Washington, D. C.

SNPA (Eastern Div.) Mechanical Conference — Secretary, Tom Tanner, c-o SNPA, P.O. Box 1569, Chattanooga 1, Tenn.

SNPA (Western Div.) Mechanical Conference—Chairman, George N. Guthrie, Pressroom Supt., Little Rock (Ark.) *Gazette;* Secretary, C. W. Tabb, 723 Texas Bank Bldg., Dallas, Tex. 1950 Conference dates and meeting place to be determined later by Executive Committee.

Technical Association of the Lithographic Industry — (TALI)—1950 meeting scheduled for second week in April, Rochester, N. Y. President, Michael H. Bruno, Lithographic Technical Foundation, Glessner House, 1800 So. Prairie Ave., Chicago 16, Ill. Secretary-Treasurer, Geo. W. Wilhelm, 814 N. East Ave., Oak Park, Ill.

BEFORE YOU BUY SAW TRIMMERS, CHECK THE NEW MORRISON

MODEL 3-A or MODEL 45!

. . . Surest Start to Composing Room Savings

"Wish I had seen the Morrison *first*" — is the lament we have heard from new owners of saw trimmers. The words come from men who, too late, checked the many new features of Morrison Saw Trimmers at some friend's plant — and quickly realized the benefits in labor and time saving, more accurate work, greater versatility and usefulness so easily proven with a Morrison.

If you're interested in lower composing room costs, you can't afford to miss reading a new Morrison Saw Trimmer folder entitled "ESSENTIAL TO COMPOSING ROOM ECONOMY." Write for your copy today!

MORRISON Model 45 with Pistol Grip Saw Blade Adjustment

Model 45 features "Trigger-Speed" saw adjustment, 75-pica gauge and workholder *(holds the work behind the gauge for easier handling, visibility, accuracy)*; Available with extension gauge, miter gauge, miter vise saw grinder, trimmer grinder, and many other standard and DeLuxe features. Table, 18" x 27". Larger Model, 3-A, 30" x 18".

CHECK — Only Morrison Saw Trimmer gives you ALL these exclusive features:

- Miter Gauge with Point Adjustment
- Patented Universal Saw Blade, with Saw Grinding Attachment
- Right and Left Hand Mitering — all Miters face up
- Miter and Lineup Gauge
- Any Angle Gauge
- Automatic Index for Plate Cutting and Trimming Positions
- Swing out 135 Pica Extension Gauge
- Advanced Clamping Method

Symbol of Operating Economy

THE MORRISON COMPANY MILWAUKEE WIS.

THE *Morrison* COMPANY

PRECISION MACHINES FOR THE GRAPHIC ARTS INDUSTRY

125 W. Melvina Street, Milwaukee 12, Wisconsin

Unusual Press Hookup

An unusual press run took place in the pressroom of the Youngstown (O.) *Vindicator* on Saturday night, September 17 when the Sunday (September 18) issue of the *Vindicator* was printed. For the first time, 9 press units in line were coupled together. Since the *Vindicator* does not have color units, a black press unit was utilized to print a page in color.

The capacity of each press unit is 8 pages in black printing.

The *Vindicator* is installing 4 new Goss press units (2 on either end of the press) and two of them were used in this run, after having been installed and operating for a week previous.

Pressroom Supt. Earl Weiskittel, in commenting upon the feat, first explained that the Sunday edition is always run as a four-section paper and usually, 8 press units are required.

Weiskittel said: "The old press arrangement consisted of 8 units arranged as follows: 2 units, folder, 4 units, folder, 2 units. The addition of new units provides 4 units, folder, 4 units, folder, 4 units. This new arrangement gives us 8 units on either No. 1 or No. 2 folder, 4 units on each end of the folder.

"With this new setup of units in operation for the Sunday, September 18 paper, we were able to run 7 of our old units and 2 of the new units in the following hookup: 4 units back of No. 2 folder, 4 units front of No. 2 folder and 1 unit front of No. 1 folder. In other words, we ran Nos. 4, 5, 6, 7, 8, 9, 10, 11 and 12 units, using Nos. 5 and 6 units for the color run. Units Nos. 4, 11 and 12 were run as balloon sections. Our sections were 24, 10, 16 and 12.

"After all our units are operating, we can see no reason for not being able to operate our press on a 64 page, 8 roll machine (straight run), and use up to 12 units in line thereby giving us the advantage of printing 3 colors and black on as many as 8 different pages."

Mr. Weiskittel stated that on the initial run described above the press was operated rather slowly because of folder limitations. However, since that time on similar runs, press speeds up to 36,000 p.p.hr. have been attained.

RIT Adds Miller Press

A 27 in. by 41 in. Miller Major Automatic Press has been put into operation in the production laboratory of the Department of Publishing and Printing of the Rochester Institute of Technology. In addition to the new Miller Major press, the lab is equipped with two V-50 Miehle Verticals, a Chandler & Price Craftsman Automatic, a hand fed 10 in. by 15 in. Chandler & Price, a Model C-4 Intertype, a Model 32 (mixer) Linotype, an APL, a Cleveland Double O Folder, a 36½ in. Diamond Paper Cutter, and miscellaneous hand composition and bindery equipment.

A former RIT graduate, Robert W. Bell, has accepted a position with the Institute and will assist Charles W. Hunt in the pressroom of the production laboratory.

IDS in New Location

International Dry Spray Corp. has announced a move to new quarters in New York which comprises 6000 sq. ft. of floor space on three floors. The main floor is used for the assembly and testing of IDS equipment. Address of the new location is 13 East 19th St. Sid Bennett, President of IDS, extends an invitation to all printers to visit their quarters and see a demonstration model of the IDS Dry Spray Gun in operation.

According to an announcement by Ray C. Cook, Sales Director of the Printers Equipment Div., Hamilton Manufacturing Co., Roger L. Perry will

R. L. Perry, appointed to assist R. C. Cook, Sales Director of Printers Equipment Div., Hamilton Mfg. Co.

assist him in working with Hamilton Dealers and their salesmen. Following his graduation from the University of Wisconsin, Mr. Perry was employed by the Courier Publishing Co. of Waterloo, Wis. He joined the Hamilton organization in January of this year and will make his headquarters at the company's plant at Two Rivers, Wis.

J. Stanley Clark has been appointed Manager of International Printing Ink, Buffalo, N. Y. branch office. He succeeds Tom Reese, jr., who recently resigned to

J. Stanley Clark, appointed Manager of the IPI Buffalo, N. Y. branch office.

enter another field. Mr. Clark has been manager of the Buffalo Service Station since 1946. He began his career with IPI in 1935 after graduating from Johns Hopkins University with a B.S. degree in Chemistry. His various assignments included work in the New York IPI Engineering Dept., Baltimore Branch and Service Station and the Cincinnati Factory. Mr. Clark is a veteran of World War II.

Another Man's Business

Initial showing of the Miller Printing Machinery Co.'s new film, *Another Man's Business*, took place at the International Association of Printing House Craftsmen's convention held in San Francisco in September 1949. Theme of the full color, sound motion picture, is to take the audience through the Miller factory and explain the planning and manufacture of Miller presses.

In planning a new press, the department heads are called in for a conference. When agreement has been reached, the drafting room goes into action. After the design and specifications have been completed, ten miles of blueprints are required to cover every manufacturing detail. Spot operations showing the making of gears, castings, etc., are shown. Also illustrated are Brinnell hardness tests on various parts.

The assembly line is shown. Instead of the work moving down the line, ten presses are set in assembly line. Each group of specialists progress down the line, each doing its particular operation or operations. After each important assembly, the press is tested by operating it for such things as gear hum, synchronization, cylinder motion, inking mechanism, etc. Plant operation on adjustment are explained.

After the final testing of the completed press, it is prepared for shipment and set up and tested for operating conditions in the customer's plant. As a strictly educational picture, it should indicate to every person seeing it the meticulous care and precision that go into the manufacture of a press.

The film is available to Graphic Arts groups and may be booked for organizations upon request to the Advertising Dept., Miller Printing Machinery Co., 1131 Reedsdale St., Pittsburgh 12, Pa.

Sta-Hi's New Plant

Ground breaking ceremonies took place recently in Whittier, Calif., prior to the start of construction on a $70 thousand west coast headquarters for the Sta-Hi Corp. With the aid of the traditional bright new gilded spade, President Craig C. Baker, head of the Sta-Hi organization, turned the earth at the new location which will bring the newspaper equipment manufacturers from Los Angeles sometime in January, 1950.

Construction of the one-story building, which occupies ¾ of an acre, will be of reinforced brick masonry with steel sashes and roof trusses. The front 20 ft. will be occupied by the engineering department, fireproof record vault, office of the president, general offices, rest rooms and storage. The remaining area in the rear will serve as the shop area.

Those present as President Baker officially broke ground included Sta-Hi officers Allen Royce, Treasurer; O. T. Cochran, Secretary; R. W. Turner, Assistant to the President; Whittier city officials, and the construction firm representatives.

Patents

For The GRAPHIC ARTS

Covering patents issued August 2, August 9, August 16, August 23 and August 30.

All new patents for the Graphic Arts are reported exclusively for Printing Equipment Engineer by Invention, Inc., an industrial patent research organization in Washington, D. C. Invention, Inc., presently has the only staff in the country that examines, in the U. S. Patent Office, the complete printed copy, drawing by drawing and page by page, every one of the several hundred new patents issued each week. Printing Equipment Engineer is the only trade publication in its field offering a report based on this complete coverage. For copies of the patents listed here specify the patent numbers and send 25c for each separate patent, or 10c for each trade mark or design patent (stamps not accepted) to the Commissioner of Patents, Washington, D. C.

Binding, Cutting, Perforation

During the five weeks covered by this report, no patents have been issued for this heading.

Composing Room Equipment

2,479,588. ROUTING AND PLANING MACHINE is for use in press and composing rooms for routing out cuts, stereotype casts and linotype slugs. There are no foot pedals. The motor is shiftable horizontally and may be adjusted and fixed at selected elevations. A tool carrier is carried by the motor and is vertically shiftable thereof. Means are provided for normally yieldingly holding the tool carrier in an upper position of vertical travel. The tool is normally held in an open position and is only lowered into cutting position when the motor itself is set in operation. Invented by John W. Dixon, Indianapolis, Ind.; Louise La Von Dixon, administratrix of said John W. Dixon, deceased. Unassigned. Application January 25, 1945. 4 claims.

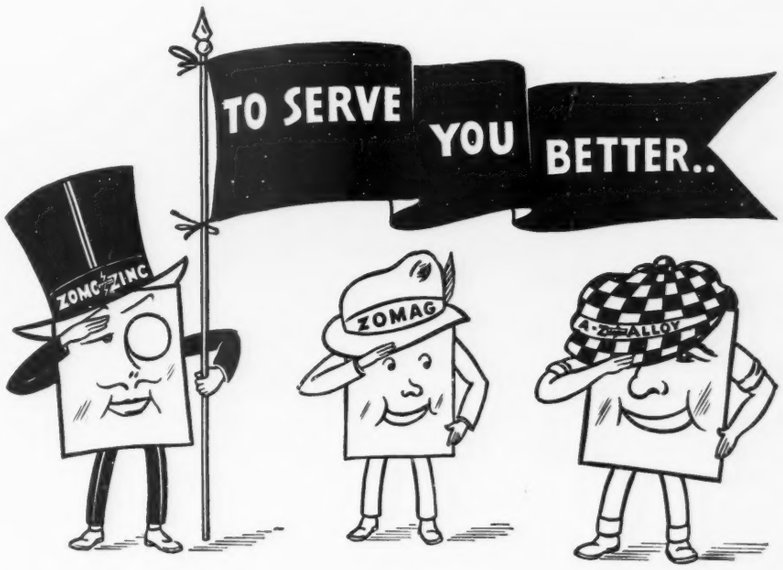
Feeding, Folding, Delivery

2,478,053. PRINTED SHEETS MAY BE TRANSFERRED from an impression cylinder of a cylinder flat bed press to an endless chain conveyor, either when the cylinder is down on impression, or when it is raised or tripped off impression. Simple mechanism is provided whereby any backlash between the driving cylinder gear and the driven chain delivery gear is eliminated so that the meshing relation of such gears remains firm and positive whether the cylinder is on or off impression. An improved sheet guide is provided which tends to control the trailing portion of a sheet between the points where it is being taken over by the delivery grippers, to the point when the tail end of the sheet is completely free of the impression cylinder. Invention is particularly valuable for multi-color presses. Invented by Bruno Pasquinelli, Chicago, Illinois. Assigned to Miehle Printing Press and Manufacturing Company, Chicago, Illinois. Application March 5, 1948. 10 claims.

2,479,060. COLLATOR comprises a series of feeders for feeding sheets from corresponding supply stacks, in combination with a conveyor fed by the feeders. The advance of the conveyor is synchronized with the operation of the feeders to cause the desired groups of sheets to be formed progressively on the conveyor with the sheets in each finished group arranged in the same sequence as the feeders. Should one of the feeders function in a faulty manner a detector acts to cause that particular feeding operation to be skipped; all of the sheets fed on that feeding cycle are discarded and the conveyor pauses for duration of that feeding cycle. A continuous succession of feeding failures operates a switch to stop the whole apparatus. Invented by William Ward Davidson, Evanston, Ill. Assigned to Davidson Manufacturing Corp., Chicago, Ill. Application July 1, 1944. 9 claims.

Plate Making

2,480,400. A METHOD OF MAKING GRAVURE PRINTING PLATES from a full-range half-tone, such as a half-tone photograph or print which forms the resist for making such plates, provides for breaking up solid black areas by making two successive exposures of the resist. The first exposure is made through a full-range positive half-tone transparency, while the second is made through a positive transparency having a uniform dot formation consisting of slightly separated opaque dots. The resist is treated so that it will produce cavities in the plate which vary in



...with all you want - when you want it!

Our building and plant expansion program is now complete. We've increased our production capacities . . . all the way from electric induction furnaces to new machine-cut finish machines. So now you can get the finest plates possible . . . ZOMO ELECTRIC ZINC, A-Z ALLOY, and ZOMAG . . . *all you want, when you want them.*

Your continued demand for these fine metals has made this expansion possible. And now, with enlarged facilities in full operation, you can be assured of continued high quality . . . *in any quantity you need.*

Now, more than ever, its ZOMO ELECTRIC ZINC, the all-'round metal for all regular demands . . . A-Z ALLOY for long press runs and heavy mat work . . . and ZOMAG the light-weight metal of amazing durability.

Order all three of these metals from your regular supplier today!

ZOMO ELECTRIC ZINC ◆ A-Z ELECTRIC ALLOY

depth as well as in area. Invented by Arthur Dultgen, Manhasset, N. Y. Assigned to News Syndicate Company, Inc., New York, N. Y. Application December 30, 1944. 1 claim.

Printing Inks

2,477,776. INK aids in determining the ink requirements and cost of a definite printing job. A dispersed radioactive substance such as radioactive arsenic dissolved as $NH_4A_sO_2$ in water is mixed with the printing ink in a predetermined amount. The printed matter is then scanned with a Geiger-Muller counter. Thus with the aid of a calibration curve, the amount of ink to be used is ascertained. Invented by William F. Talbot and Rolf Buchdahl, Englewood, N. J. Assigned to Sun Chemical Corp., New York, N. Y. Application July 24, 1946. 8 claims.

Printing Presses and Equipment

2,478,262. DAMPENING ROLLER COVER. A dampening roller for use in moistening lithographic plates during printing is provided with a cover free from stitching on the outer exposed surface. Covering is formed by stitching the abutting edges of the fabric and then the cylinder of fabric thus formed is turned inside out to bring the stitches to the inner surface of the fabric and leave the outer surface free of stitches. Invented by Frederick C. Gay, Brooklyn, N. Y. and Edward J. Gay, Westfield, N. J. Assigned to Bingham Brothers Company, New York, N. Y. Application July 17, 1946. 3 claims.

2,478,314. REGISTERING DEVICE. A registering device or printing frame having a disappearing stop or guide element is useful in connection with photography, stencilling, printing and various other fields, e.g., to position a sensitized paper with respect to a negative. Invention includes a guide finger or stop member forming a part of a collapsible linkage mechanism whereby the guide finger can be effectively retracted at the appropriate time. Invented by Wesley Petty, Effingham, Ill. Unassigned. Application July 22, 1946. 9 claims.

2,479,023. A UNIT PRINTING PRESS is provided having improved structural side frames. When assembled, the frames constitute a complete press having accurately aligned journal openings for rotatably mounting the necessary printing cylinders and transfer drums. The units may be combined in tandem for multicolor printing with the printing couple of each unit printing one color and the transfer drums of each unit passing the sheet in proper register into the next unit. Frames have channeled grooves on their inside surfaces to provide necessary clearance for certain printing cylinders and their shafts. The cylinders may be inserted after the side frames have been erected. Invented by Henri Peyrebrune, River Forest and Arthur G. Jacobson, Chicago, Ill. Assigned, by mesne assignments, to Miehle Printing Press and Manufacturing Co., Chicago, Ill. Application August 3, 1946. 2 claims.

2,479,103. INK FOUNTAIN FOR PRINTING PRESSES. Patent discloses a pressure feed ink fountain capable of use with different types of presses. In the construction pressure is imposed on ink in the fountain reservoir by a plunger or piston vertically reciprocated within the reservoir by a shaft journaled in and projecting beyond the reservoir walls. A projecting end of the shaft has driving connections, including a driving pulley, which are adjustable circumferentially of the shaft whereby the pulley can be adjusted relatively to the shaft and the reservoir, both vertically and laterally, to assume various positions for engaging with a rotating part of the press which is to serve as the drive shaft for the plunger actuating connections. Invented by Joseph P. Dorr, Washington, D. C. Assigned to Capital Tool and Manufacturing Co., Washington, D. C. Application May 29, 1946. 5 claims.

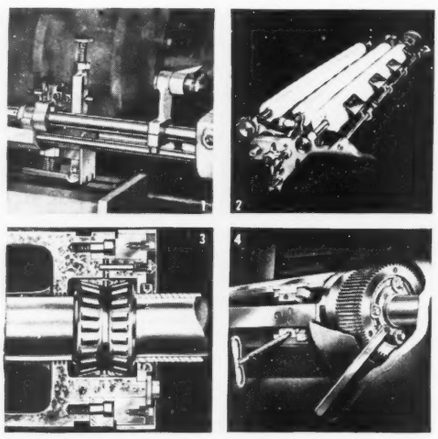
2,480,173. PRINTING PRESS ROLLER SLEEVE. The seamless sleeve is preferably formed of neoprene or synthetic rubber. It is rolled on a transfer spool when purchased. Frustro conical spool is apertured so that it can be positioned over the roller core of a job printing press roller. It extends flush with the end of the press roller while the rolled sleeve is being unrolled from the spool and into place on the press roller to renew its surface. Invented by Emory L. Wilson, St. Simons Island, Ga. Ten per cent and forty-five per cent, respectively, assigned to Russell W. Cummings and Edward K.

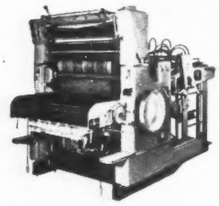
Exclusively! EBCO

22" x 34" SINGLE COLOR OFFSET PRESS

ONLY EBCO HAS THESE FEATURES!

1. Patented Pull Side Guide
2. Larger, Sturdier Dampening Rollers
3. Cylinders Balanced and Running on Tapered Roller Bearings
4. Rapid Accurate Plate Cylinder Adjustment
5. Positive Register Detectors on Each Front Guide
6. New One-piece Feeding Cylinder
7. Full Sight Larger Diameter Inking Rollers
8. Inker Driven from Main Drive
9. Proper Blanket Tension Easily Applied
10. Positive Sheet-by-sheet Reloading Feeder
11. Extra Capacity Clear View Delivery
12. Streamlined for Safety and Ready Accessibility
13. Graduated Scales for Feeder Pile and Side Guide





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PRINTING MACHINERY DIVISION ELECTRIC BOAT COMPANY
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RUSS BUILDING, SAN FRANCISCO, CALIFORNIA

For Patent Research in the U. S. Patent Office, or a prompt estimate on any type of search, address INVENTION, INC., Munsey Bldg., Washington, D.C.

Green, both of Jacksonville, Florida. Application January 25, 1946. 1 claim.

2,480,373. A LOCKING CLIP ARRANGEMENT is provided for locking a pair of stereotype tubular printing plates onto a printing cylinder. The invention includes a novel center clip assembly, end ring assembly and end clamp assembly. Each assembly cooperates with the others to lock a pair of plates onto the cylinder. Invented by Earl P. Lacure, Battle Creek, Mich. Assigned, by mesne assignments, to Goss Printing Press Company, Chicago, Ill. Application June 13, 1946. 17 claims.

EXECUTIVE Ts

The Mergenthaler Linotype Co. has announced the appointment of Harry W. Porte as Vice President in Charge of Sales. Mr. Porte came to the Eastern headquarters of the company in May 1949, as Director of Sales after 15 years as manager of Linotype's Pacific Coast Agency. He attended Ohio Military Institute and the University of Cincinnati, and served as an officer in World War I. Shortly after World War I, his father and he established the Porte Publishing Co. in Salt Lake City. Mr. Porte's interests in printing made him a collaborator on the first *Dictionary of Printing Terms*, a member of the Roxburghe Club and a frequent adviser to technical schools.

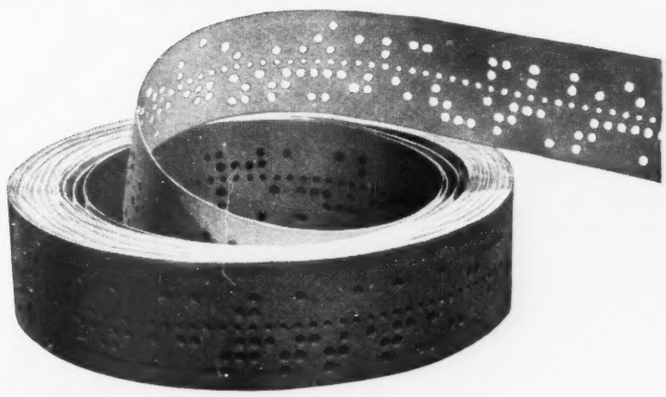
Harry W. Porte, named Vice President in Charge of Sales, Mergenthaler Linotype Co.

John F. Banthin, President of the Banthin Engineering Co., announced the appointment of George F. Stickley as Sales Manager of sales in the U. S. and Canada of the Banthin Cylinder Press. Until recently, he was a special Graphic Arts representative for the Multilith offset press. Mr. Stickley also was formerly associated with Brandtjen & Kluge, Inc., as manager of that firm's Boston and New York offices. Mr. Stickley will make his headquarters at the Banthin Engineering Co.'s main office at 1849-57 Main St., Bridgeport 4, Conn.

Appointment of Emerson D. Ogle as Manager of the industrial sales department of SKF Industries, Inc., was announced recently by R. R. Zisette, General Sales Manager. He succeeds C. D. Cummings, who has resigned. Ogle joined SKF in 1937 as an engineer trainee upon graduation from the University of Maryland. He served two years as field engineer in the Buffalo, N. Y. sales office and for the last two years has been manager of the automotive and electrical section of the industrial department.

Appointment of Joseph Graziano to the post of Assistant Manager at the Newark facility of Federated Metals Div., American Smelting and Refining Co., was announced today by S. Turkus jr., Plant Manager. Simultaneously, James F. Orr was promoted to the post of Plant Superintendent, succeeding E. R. Marble jr., transferred to the Central Metallurgical Dept. as assistant to John A. West, Manager. Mr. Graziano has been with Federated for 19 years. During that time he served as a bookkeeper, traveling auditor, member of the comptroller's

This tape produces type automatically



This is Teletypesetter tape. If you have a production problem due to a shortage of men or machines, tape like this can help you.

The code-holes you see have been punched on a Teletypesetter Perforator, a machine as simple and easy to use as a typewriter. When the tape is fed into a Teletypesetter Operating Unit mounted on a composing machine, it gives continuous, *automatic* operation—produces slugs at the rate of 350 to 400 lines of straight matter per hour.

Teletypesetter has stepped up type production for many publishers and printers by as much as 75% to 100%. It can do the same for you. Write today for more details to:

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staff and assistant to the General Manager. Mr. Orr is a University of Pittsburgh alumnus. He started with the company as a chemist in 1935. Subsequently he was a research chemist and metallurgist on white metals at the Pittsburgh plant, and Assistant Superintendent in charge of white metal production at Newark.

Minnesota Mining & Mfg. Co. has announced the following appointments: William L. McKnight to the newly created post of Chairman of the Board; Richard P. Carlton to President of the firm; Archibald G. Bush, Chairman of the Executive Committee; and George H. Halpin and Herbert P. Buetow, Executive Vice Presidents.

Transfers Sales Activities

The TAKK Corporation has announced that it has transferred to The John Hewson Co. of New York, N. Y., all sales and service activities in connection with TAKK static control equipment. The main offices of the Hewson organization are at 106 Water St. The company states trained technicians will give advice and recommendations in all industries where static is a problem.

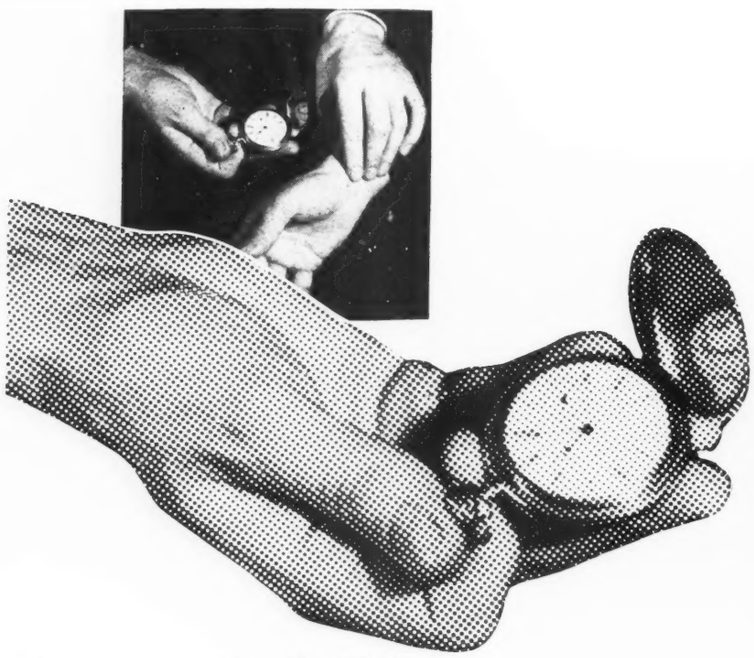
Briant W. Patterson has been appointed Vice President of Canadian Linotype, Ltd., and takes over direction of sales for that company, replacing Harry E. Reid who is retiring after 31 years of Linotype service. Mr. Patterson, a graduate of Dartmouth College, had experience in the field of commercial printing before joining the Linotype organization in 1939. He served with the U. S. Air Forces in World War II and returned after the war to his work in Linotype product research and sales.

Briant W. Patterson, appointed Vice President of Canadian Linotype, Ltd.

© Bachrach

Appointment of John M. Morehouse as Central Branch Manager of the Harris-Seybold Co. has been announced by Ren R. Perry, General Sales Manager. As Central Branch Manager, he will assume many of the duties of the late A. T. Walker, and will be responsible for Harris-Seybold sales activities in Ohio, Michigan, West Virginia, Kentucky, eastern Indiana and western Pennsylvania. Born and educated in Cincinnati, Mr. Morehouse is married and has two sons.

John M. Morehouse, appointed Central Branch Manager of Harris-Seybold Co.



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Stereotypers want a mat they can depend upon. They want uniform shrinkage, unvarying high quality, consistent behavior. Burgess Chrome Mats meet these requirements.

Extreme care in manufacture is responsible for Burgess' dependability. Constant control of every stage of production is maintained. Frequent tests and checks are made, and no deviation from rigid standards is permitted. That's why Burgess Chrome Mats are the best obtainable—why they are the choice of stereotypers.

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BURGESS CELLULOSE COMPANY

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FREEPORT, ILLINOIS

Great Lakes Conference

NEWSPAPER mechanical and production executives of Indiana, Michigan, Ohio and Wisconsin are urged now to make reservations for the Great Lakes Mechanical Conference to be held at Hotel Schroeder in Milwaukee, Wis., on January 15, 16 and 17, 1950. Executives from newspapers in other states are invited to attend the various technical sessions.

"The STAR people have surely stepped away ahead with their spacebands. From what I can see, they look like the world's best. Take the matter of material: *spring steel* is expensive, but the best is not too good for these spacebands . . ."

It has always been our policy to select the best steel for the purpose, regardless of expense. The type that goes into STAR spacebands was chosen because it is made from ore notably free from impurities • It is **this** quality that gives STAR spacebands their basic toughness. Further treatment refines the grain structure to a degree that makes this a steel absolutely unsurpassed for its particular job • Extreme accuracy in manufacture makes STAR the **only** spaceband with sleeve and wedge fully interchangeable.

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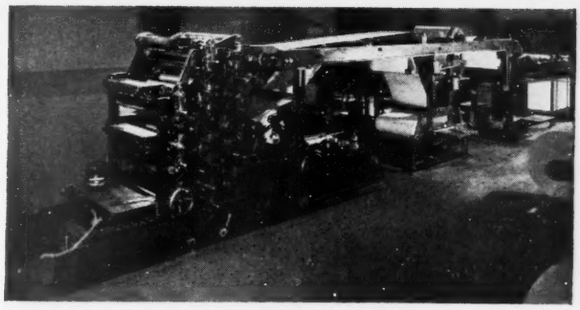

PROFITS are made in SELLING

When sales decline check your overhead expenses and selling price, because many a man, not being cognizant, priced himself out of business.

Overhead expenses have not suddenly become a major factor in determining business success. It has always been a major factor

Nearly every printer can print most jobs if he is given time and money enough, but customers seldom allow enough time and always want the job printed for less money.

To help you meet the demands of your customers for excellent quality printing at rock bottom selling prices Hess & Barker's high speed 4 to 6 color rotary printing press excels in speed, quality work and **low, very much lower operational cost** than other 4 to 6 color presses.

During business recessions it has always been difficult to reduce overhead expenses as fast as sales decline, so why not cut production costs to the very bone with a Hess & Barker press that will bring your selling price below competition and up will go your sale

Discover for yourself, as other successful printers have, profits are made in selling. With their Hess & Barker presses their production costs are very low and therefore selling costs are 'way below competition, so big jobs are moving into their plants as Hess & Barker are installing more and more presses.

Hess & Barker's 4 to 6 color rotary printing press feeds from a roll and delivers a perfect web rewind or 10,000 sheets an hour.

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Photoengravers' Equip.

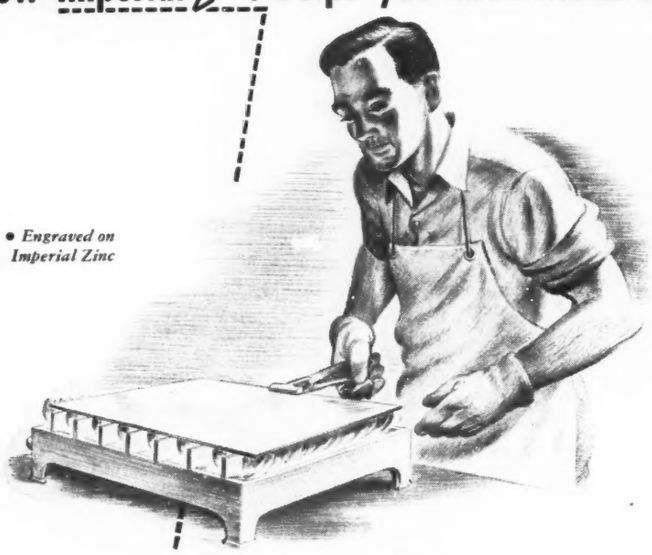
(Continued from Page 44)

work this way is generally much less than the time consumed in making the five (for example), separate sets of negatives —total twenty. This would not take into consideration the time consumed in special stripping of the separate color negative sets into one layout, or mounting them on one block or the printer registering them separately in the form. Photocomposing is growing in popularity as camera equipment is being installed and personnel becoming efficient in the work.

Etching Equipment

Development work in etching methods has brought out several types of machines for the etching of zinc, copper and magnesium. The generally accepted principle of etching zinc and magnesium is by acid spray. Rotating paddles dipping up the acid throw it in an adjustable spray onto the zinc plate to dissolve the metal. The differences in the various machines are in the design of the paddles, method of placing and removing the plate in and out of the machine, and the material from which the machine is made.

How Imperial *Zinc* helps you save Make-Overs



• *Engraved on Imperial Zinc*

• When the separate sheets of zinc on a color job are burned in at different temperatures, or for different lengths of time, sometimes they "grow" to different lengths . . . unless the zinc is specially treated in advance as is the case with Imperial "Register-Redibak."

In the "Register-Redibak" process, Imperial Zinc, after rolling, is heated to a temperature above the point where maximum "growth" occcurs. This helps to eliminate subsequent variations as you burn in your flats . . . makes it easier to hold register . . . saves you expensive make-overs due to size variations.

Try Imperial Zinc on your next color job. Order a case today. You'll agree there *is* a difference.

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Master Etching Machine

The Master Etching Machine is made of a ceramic material, metal frame and plastic top. The plate is placed in and removed from the machine from the top by sliding the plastic top to one side.

Chemco Etching Machine

The Chemco Etching Machine is made in an acid resisting all metal job. The plate is put in and taken out by sliding it through an opening in the side, waist-high to the operator. Unlike the machines that open from the top, the plate may be removed before the paddles have stopped rotating. The light weight of the Chemco machine, lends itself well to moving and cleaning.

In all of the zinc and magnesium machines on the market, the zinc plate is placed in the machine in a vertical position. Various paddle designs give protection from undercutting to a more or less degree. Some executives feel that on machines that open from the top and if the machine is turned on by chance or accident while the top is open, serious acid burns or damage to surrounding walls may result. Also, the fumes of the acid are directly under the operator's face when he is opening and closing the machine.

Powdering Machines

Research in plate powdering has gone ahead to the point of designing various types of automatic powdering and cooling machines. Some of these have been successful but most of them too large or costly. This development work will continue and it is known today that there are several successful types of machines in the perfecting stage.

Copper Etching Research

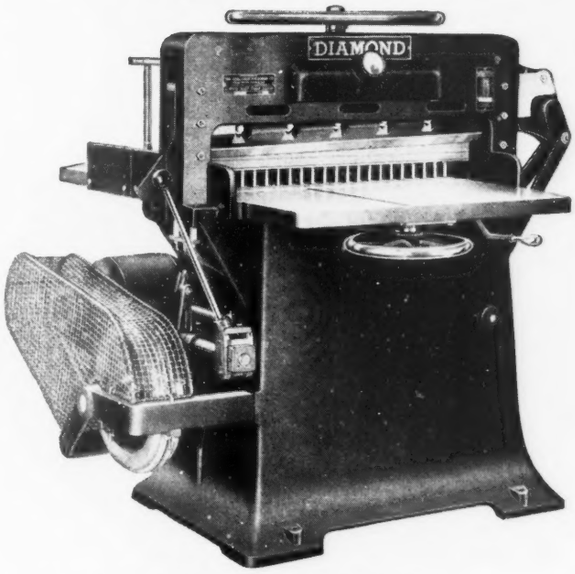
The etching of copper by machine is a disputed subject. At the present time, considerable laboratory work is going on at Photoengravers Research, Inc., at Battelle Memorial Institute, on this subject. There are two types of copper etching machines in the industry, paddle-spray and electrolytic. The etching fluid used for copper is perchloride of iron in solution which is used in all spray type machines. In the electrolytic machines a solution of salt and salammoniac is used, which is a current conductor between the two electric current poles. Opinions vary as to which method gives the best result in etching depth, tone retention, undercutting, etc. The etching time, however, is just about equal for the same depth of etching which is measured in thousands of an inch.

Robertson Machine

Copper etching machines of the spray type are made approximately the same in design as the zinc machines, that is the principle of spray application and top opening for plate placement and removal. The Robertson Etching Machine is of ceramic and slate construction and has long been a popular copper etching

I'LL BUY THAT-

It's a Challenge!



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For more than a half-century, printers have bought Challenge equipment with confidence. And throughout the years, the Diamond Power Paper Cutter has been the popular choice—so much so that today there are many more Diamonds in service than all other makes of hand clamp power cutters combined!

The massive base and heavy arch construction . . . extra heavy knife bar . . . safety paper guard . . . double motion starting lever . . . double equalizing brake . . . "easily-squared" back-gage . . . "duplex" measuring tape . . . table light and tape magnifier . . . are just a few of the features that have made the Diamond the dependable product of a reliable manufacturer. The Diamond is built in three sizes: 30½, 34½, 36½-inch. Write for complete information and prices today!

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Trouble getting border corners to show up solidly?

here's a simple way to do it:

Remove rules from form. Place hand mitering machine cutting knife about 1/32" below printing surface. Press rule against knife to get a bite, and make one downward cut. Do this on all rule ends. When locked in form, the face of rule will join snugly for a solid corner.

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Faithorn Corporation, Chicago, Illinois

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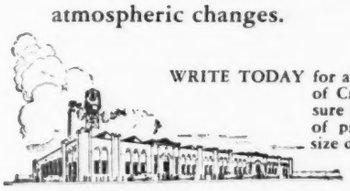

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CROMWELL PAPER COMPANY

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machine for halftone etching. In the Robertson machine, however, the plate is placed in the tank and etched face down, which is the accepted principle for etching copper halftones.

General Etching Machine

Electrolytic etching machines have not received the acceptance they should have enjoyed. Perhaps this is another example of the introduction of a revolutionary principle always receiving the question mark. But, in recent years the electrolytic principle has begun to come into its own, being now used by some of the finest quality engraving plants. The General Etching Machine, made for both halftone and deep etching of line work, is a leading machine of this type. The ease with which plates, one or more, may be attached to the plate clamps for vertical suspension in the etching tank and the control of all operations are commendable features. The principle of etching by the electrolytic method may be described as opposite to electroplating. Instead of depositing metal on the object suspended in the tank as in electroplating, in electrolyting etching the copper between the dots and in open areas between lines, etc., is attracted across the two electric poles and is dissolved away, at least partially in the salt and salammoniac solution in the tank. Etching is kept clean and regular by air flow agitation of the solution. Varying effects to obtain straight down or side etching are controlled by a dial. This machine is useful for etching color process plates. When desired, areas may be grayed out evenly and rapidly to reduce tone value as in color process etching, by simple controls of air flow and current. But one of the most favorable points about this machine is the economy of operation in the saving of the iron solution which it does not use. The solution in the perchloride machines must be emptied and a new bath refill made frequently to keep up the same operating speed and quality. The electrolytic General machine bath will operate, it is claimed, for well over two months in daily use.

WOES of LENNY LINECASTER
YOU'RE KEEPING THAT CHECKBOOK HOT, LENNY. HOW COME?
Sob
I'M ALWAYS SHELLING OUT FOR NEW METAL OR TONING METAL!
BANK
OVER-DRAWN!
THAT'S FOOLISH! GET MONOMELTS LIKE WE DID!
THAT NEEDS EXPLAINING!
MONOMELT TEMPERATURE CONTROL PROTECTS METAL BALANCE. SINGLE MELTING CUTS DROSS AND METAL LOSSES!
EVERYBODY'S TELLING ME THAT— I'LL TRY IT!

LENNY SAYS: **Monomelt takes best care of metal because it is melted and fed only under thermostatic control. Metal waste inescapable with repigging is eliminated by Monomelt's Single Melting System.**

THE **MONOMELT CO., Inc.**

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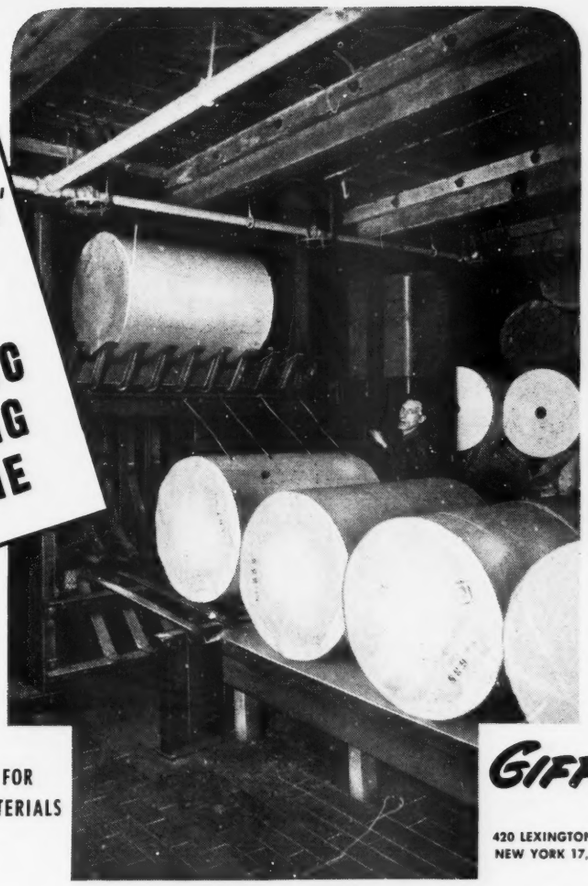
Magnesium

Magnesium, the new metal for photoengraving, shows promise of becoming a regular member of the family. Although few engravers have mastered the technique of metal printing and etching on this metal, it is gradually becoming a standard metal in the trade. Two of the difficult obstacles in making plates on this metal are the printing on it without pin holes and spots in the cold enamel resist top, and soldering it in repair work. The former will be more easily mastered than the latter. At present, no reliable solder has been found that will adhere to magnesium in the work of making joints or repairing routing accidents. Research to find this solder material is constantly going on. The most successful engravers handling large quantities of magnesium orders, advise separating the metal printing and etching departments of magnesium from zinc and copper printing and etching. This has been reported to be the answer to difficulties encountered in making plates on magnesium. The 11 pt. magnesium plate is in wide demand for printing plates for mechanical bases as well as for molded rubber plates in the bag and box printing trades. In at least one locality, magnesium plates are being used in direct-from-the-engraving cylinder printing. Magnesium has the advantage of fast etching properties, smooth grain, and long wear in matting and direct printing. Many engravers have developed the 16 ga. magnesium into a successful fine screen halftone metal in the category between the zinc and copper results.

Proofing

One of the great steps forward in photoengraving is the turn to the cylinder



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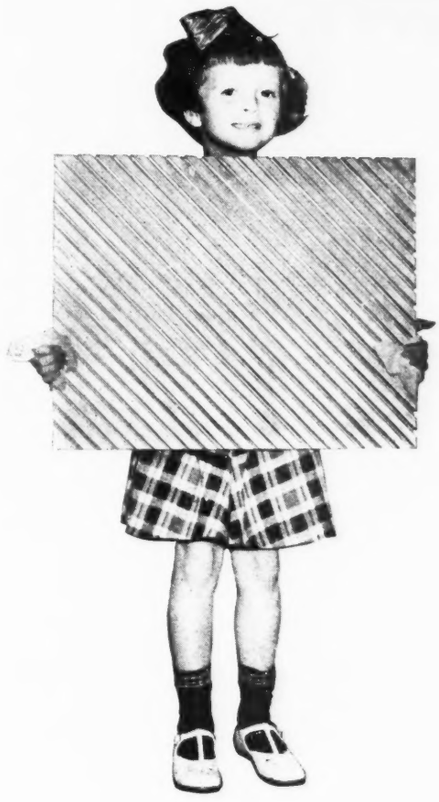

Child's Play!

The new
WESEL MAGNESIUM FINAL BASE
tough—strong—but even a six-year old can
handle an entire WESEL Base machined
for a Miehle Vertical Press!

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Originators and still the leading Manufacturers
of Patented Plate Mounting Base

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style proof press. This was several years ago but to keep abreast of the rapid developments in magazine printing, proof presses have been improved to meet the demand for all types of printing presses. The Vandercook No. 219, single color press has every feature to take care of rapid and true plate reproduction in proofs of a single color at a time. A handy feature is the mechanism for raising and lowering the press bed to accommodate plates of different thicknesses from 18 ga., 16 ga. and 11 pt. engravings to the various thicknesses of electrotypes and plastic plates. Improved tripping, inking and impression features as well as ink distribution are features. The 232-P model with double feed board, split roller, fully automatic motor-driven features, is the two-color model. In pairs, side by side, two of the No. 232 models are delivering 4-color wet proofs in approximately 40 sec., using two operators, passing the proof across from press to press. They are also used for two color proofing in work for two-color printing presses, giving a true dot value and trapping proof that is well meeting the requirements of all pressrooms. But Vandercook's newest development is the 4-color proof press which delivers a four color wet proof by continuous impressions of the four plates, in other words, a true four-color wet proof closely simulating actual wet printing conditions. These presses are enjoying a surprising demand from color process engravers.

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Type Cabinets
help you cut
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● If composition costs are out of line, take a good look at your type cabinets. Ask yourself:

1. Do compositors now spend valuable time running back and forth for materials that should be within arm's reach?

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Lowest composing room costs can result only when type cabinets are exactly suited to kind of plant and type of work. With Hamilton Type Cabinets you can choose from seventeen different basic designs to obtain cabinets and working banks that exactly fit *your* needs and enable *your* men to work with maximum efficiency.

All Hamilton Type Cabinets are built to Hamilton quality standards in every detail. All include Hamilton features such as unit construction, interchangeable working tops and cases equipped with Hamilton-patent steel shoes which insure that fully-loaded Hamilton type cases will always slide freely. All are finished in Hamilton's new metallic gray, the most durable and attractive finish for composing room equipment. Your Hamilton Dealer will help you select the type cabinets you need. Or write us for complete Type Cabinet Catalog.

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Plate Mounting

Routing Equipment

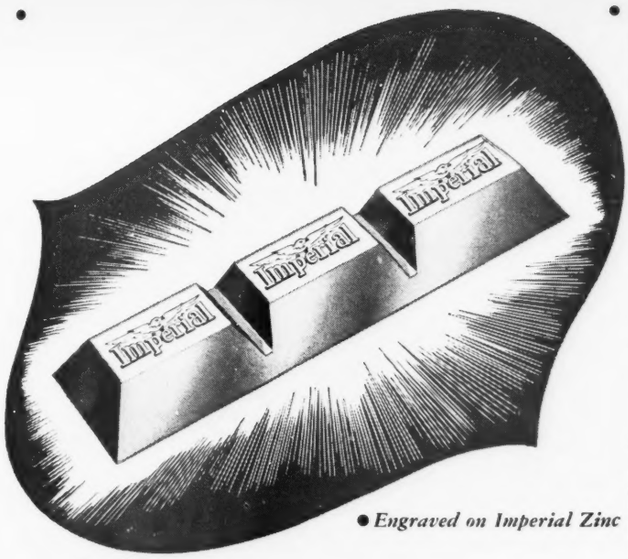
Plate mounting in photoengraving is a most important branch of the industry. In this operation it is unfortunate that so few engravers appreciate the fact that perfect blocking and other machining is of paramount importance to them. Too few realize that photoengraving is dependent upon letterpress printing and therefore the engraving industry should make every effort to deliver plates that are easy to print from and that require a minimum of lock-up and makeready time. To do this, modern machinery is necessary. An antiquated routing machine can be a costly piece of equipment. A slow, unreliable router can cause repair work and delays in this already time consuming operation. The features of the new Royle and Wesel routers, for fast reliable close routing operation are worthy of special mention. These machines are solidly built for years of daily service, and each have precision built into them.

Lauck Equipment

Plastics have recently been introduced as a sealing agent in plate mounting to replace nailing. With this type of mounting, which is rapid and sure, blocks may be flushed all around. For the most practical use mounting machines are a must. The first introduced was the Lauck Mfg. Co.'s machine for hot mounting zinc, magnesium and copper engravings. In operation, plates to be mounted are heated on an electrically controlled hot plate to approximately 350 deg. and placed on pre-coated (thermo-plastic coated) blocking material, then fed into the mounting machine. A series of rollers moves the plates along. The plates absorb some of the heat as they move along until in approx. 2 min. they move out of the end of the machine on to a receiving table. Asbestos gloves are used by the operator to handle the plates and temper sticks (wax sticks available for varying degrees of heat) provide a means of determining the heat point at which they are ready to go through. The bond between the metal plate and the wood base is so strong that it is impossible to remove a plate from the block without damaging it beyond further use. If it is necessary to remove a plate, heat is applied to the face of the plate by laying it face down on the hot plate to soften the bond. It will then release itself.

Caine Equipment

The Caine Graphic Supply Co. has produced a plastic mounting machine. It is operated on the principle of an electrotypers' molding press although the pressure from the bottom of the block is applied manually or by motor-driven mechanism. The plates are laid cold on the blocks or slabs of mounting lumber.



● *Engraved on Imperial Zinc*

Your RESPONSIBILITY IS ALSO OURS

● A better print . . . at lower cost . . . this is one competitive problem with which all production executives are faced. Because type metal is a factor of such importance both in printing quality and cost, this responsibility we gladly share.

Imperial Type Metal *plus* Imperial Service provides a positive guarantee of metal quality. It also insures that the metal in your machines will *always* be of exactly the proper formulation to work to best advantage under whatever special conditions you have in your plant.

When you specify "Imperial" you immediately unload all your metal problems onto metal specialists whose interests are *your* interests because they have no other interests to serve.

You'll find the Imperial Type Metal Man a good man to know. At your request we'll gladly put you in touch with him.

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TYPE METAL COMPANY

SERVING THE GRAPHIC ARTS *Exclusively*

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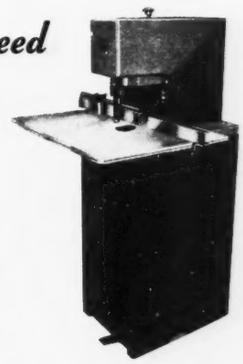
INCREASE PRODUCTION
DECREASE COSTS
In Your Bindery

WITH A *Super Speed* **HYDRILL**



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2. Hydraulically powered
3. Extra-large working table
4. Complete line of accessories available at low cost
5. Available on a two week "FREE TRIAL".

You owe it to yourself to try the Hydrill on your floor. It costs you nothing on our "FREE TRIAL" plan.

Write today for complete details!

Price . . . . . $485.

Complete with AC, 110-220 V. motor, ¼" hollow drill, 6 drill blocks, 6 stop blocks, 2 quarts hydraulic oil.

Super Speed **PRINTING MACHINERY • INC.**

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NEWSPAPERS
USE
VULCAN
Press Blankets

Continuous research has made VULCAN Blankets the outstanding press packing in Newspaperdom.

Let us show you what VULCAN Press Blankets can do for you—under your own pressroom conditions.

Vulcan

PROOFING COMPANY

FIRST AVENUE & 58th STREET • BROOKLYN 20, NEW YORK

Pacific Coast Representative: THE CALIFORNIA INK COMPANY, INC.

Canadian Representative: SEARS LIMITED, TORONTO

The upper platen of the machine contains a heating element which supplies sufficient heat to thermoset the adhesive. A heat gauge indicates when the temperature is sufficiently high to make a strong bond between the plate and the base. It is claimed by this manufacturer that approximately 250 deg. heat will set the plastic in approximately 1½ min.

Do-All Pica Master

Another innovation is the Do-All Mfg. Co.'s saw. This is a special band saw for precision sawing of engravings, either mounted or unmounted. Equipped with an especially designed band saw blade, with cutting teeth of special design and temper, this saw will cut through zinc, copper or magnesium and metal mounting bases without leaving a burr on the plate edge and very little on the bottom edge. Finishing of the edge by tooling or filing is unnecessary. Gauges both on the side and front allow high precision pica sawing. With the Do-All Saw it is now an easy matter to deliver accurate pica measured blocks, square and straight. A conversion table from picas to inches is provided when measurements are ordered in inches instead of the pica system. Outside mortises may be made with accuracy with straight sides and square corners. As thin or small a block as one pica strip may be sawed on the Do-All to a fine tolerance, allowing accurate lockup of narrow plates with type. It is also possible to set the side gauge 0.918 in. and saw plates up to 2 in. wide type high on this machine.

IN 35 SECONDS a Rouse Band Saw cuts a full galley of slugs **to variable measure**—automatically, accurately. No gauge setting is required—no clamping—no measuring! Slugs feed mechanically **at uniform speed.**

Teamed up with a type-setting machine, a Rouse Band Saw does the work of hours in minutes. It cuts slug-lines for all types of composition that require frequent changes of line measure.

MITERING MACHINES
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SLUG CLIPPERS
BAND SAWS
LEAD AND RULE
CUTTERS
TYPE GAUGES

Write today for illustrated folder on this and other Rouse time-saving printers' equipment.

H. B. ROUSE & COMPANY
2214 North Wayne Avenue
Chicago 14, Illinois

For greater accuracy—specify Rouse Composing Sticks. An investment in Rouse equipment pays a handsome profit.

"50 Years of Service to the Printing Industry"

Photoengravers on Ball

(Continued from Page 38)

decrease the amount of side etching as compared with the better known and more generally used ferric chloride etching. The speaker summed up this statement by saying that more detail can be retained in halftones and that fewer powder bites are required to reach a specified depth in line work with electrolytic etching of copper.

He said that analysis of etched copper line plates was quite simple. The depth and side etch were measured with a microscope and an etch factor calculated by dividing the depth by the side etch. A high etch factor indicates small side etching.

With halftone etchings, however, analysis was somewhat more difficult. The method finally adopted consisted of carefully chalking up the plate and determining the light reflection of various areas of the plate with a photoelectric reflection densitometer. Thus dot areas could be correlated with the amount of light reflected.

It was explained that early experiments showed that hot-top resist formulations which are normally used on copper, failed when a potential of about 12 v. was used for the etching. Polyvinyl alcohol resist does not stand up. Cold top, on the other hand, stood up satisfactorily and was ideal for experimental work.

It was explained that a 7½ in. by 8 in. plate was used in all experiments. There is some indication that the optimum voltage varies somewhat with the size of plate being etched. The optimum etching conditions for the plate were concluded to be as follows: Potential—18 v. Agitation—Vigorous air agitation; impeller agitation is slightly less satisfactory. Electrolyte—A saturated sodium chlride solution containing 1 oz. per gal. of ammonium chloride. The temperature and electrode spacing are not critical. A spacing of 4 in. was used between the electrodes in experimental work. The solution was operated at room temperature of 72 deg. F.

An easy method of determining what potential should be used with a particular size of plate, is to increase the potential until a rough etch is obtained. A potential 2-3 v. below this value is then selected for use. Most generators available with etching machines do not have the current capacity for high-voltage (18 v.) etching of large plates. Work on this problem is now being conducted and it appears that a reduction in power requirements will result in either a slower etching rate or more side etching. The etching rate under optimum conditions is about 0.001 in over 1¼ min. so that a somewhat slower rate can be tolerated.

Under optimum conditions the etch factor is around 5.0. This compares favorably with the value of 4.0 obtained by etching face down in a still bath of ferric chloride (This method is too slow to be practical for line work) and with

ECONOMY LIFTERS

As used in the printing industry for:

ROLL HANDLING
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BOXES, FLAT PAPER

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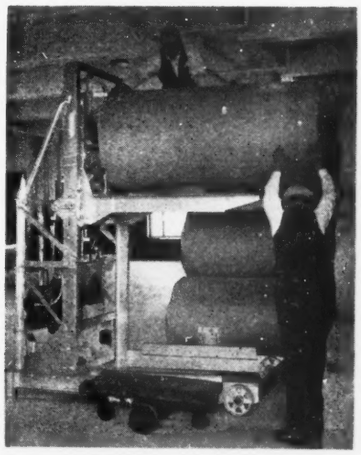

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Other lifters available with capacities of 500 to 5000 pounds. Any platform lift and size. Hand and electric powered hoist units.

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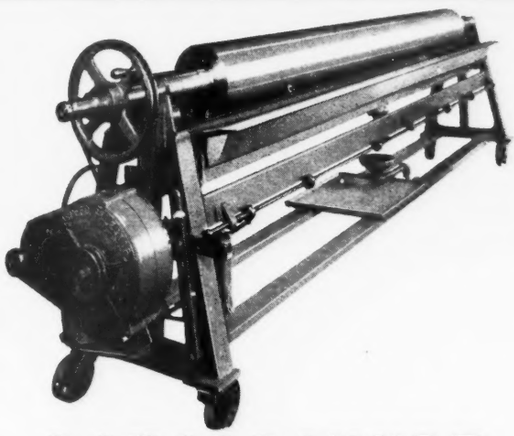

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ETCHING TRUCK

Manufactured in Various Sizes and Equipped with acid resistant rubber lined adjustable pan; ¾ H.P. motor and speed selector with speeds from 0 to 420 RPM; control bar extending the length of the pan for stopping or reversing rotation of cylinder; rubber covered tray for holding containers to recover acid; funnel spout drain with swivel pipe to drain water from pan. The truck can also be used for developing carbon tissue, staging and as a cylinder truck. It is mounted on casters to allow easy moving from department to department. This will increase the efficiency and speed of any gravure processing section.

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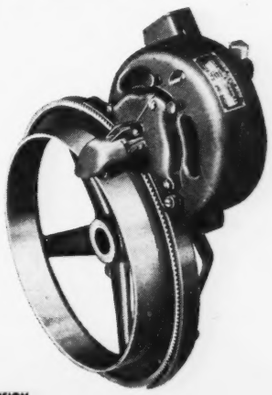
Where the best costs less!

CUSHMAN, pioneer line-casting machine motor, has advantages not to be found in any other. Built to traditional New England standards of ruggedness and precision and installed and adjusted in a matter of minutes, it delivers years of trouble-free service. Many Cushmans built 30 to 40 years ago are still delivering tip-top performance. For **your** line-casting machines, the power plant to specify is the

CUSHMAN
Offset
MOTOR



. . . from every angle your best buy . . . and it COSTS YOU LESS . . . at the time of purchase . . . and over the years

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IT HURTS HIM WORSE *THAN THE ADVERTISER*

So thinks the conscientious space man as he glimpses the dull, ineffective rendering of the ad he has labored to prepare and sell . . . Yet he must call on the advertiser and try to persuade him that things are not so bad . . . Fortunately there is one big ray of hope. The stereo department is going back to Certifieds, beginning tomorrow.

For dependable stereotyping, rely on Certified Mats
Certified DRY MATS
CERTIFIED DRY MAT CORPORATION, 9 Rockefeller Plaza, Dept. M, New York 20, N. Y.

the value of about 2.5 obtained with a ferric chloride splash-etching machine (which is not much faster than electrolytic etching).

While it is not believed that all the problems associated with electrolytic etching have been solved, the work so far indicates that it should at least receive a trial in more plants than are now using it. The stability of the solution also has much to recommend it as compared to ferric chloride.

Promotes Combination Shop for Platemaking

"Many of you in the photoengraving business are being outdistanced by your competitors," asserted H. A. Porter, Vice President of Harris-Seybold Co. "It might not show now," he continued, "but you can be sure that you will feel it within the next few years if you don't do something about it soon."

Mr. Porter had reference to the strides made within the last decade by the offset-lith printing process and urged photoengravers to "Open the door (to offset-lith platemaking opportunities) and welcome a running mate that will assure you a greater and fuller business life. He asserted that the business future looks bright and the outlook is favorable, in spite of some economic clouds in the sky.

He cited preliminary census figures which show that the photoengraving industry has increased from $55.6 million in 1939 to $133.5 million in 1947. This is an increase of 140% or almost 2½ times in 8 years. Commercial printing increased 150% (exactly 2½ times), and lithography increased 212%—over three times the 1939 volume.

Mr. Porter then stated these figures "are not what we use when we calculate long term growth for two reasons: (1) In the first place, they reflect large changes in the value of the dollar—inflation, if you wish. (2) They cover too short a period.

"We are basically interested," he stated, "in long term growth in terms of physical rather than dollar production. The dollar volume may vary considerably for the same physical capacity. Figures show that our population is growing over a long period at about 1½% increase annually, whereas our industrial production, in terms of physical output of essential and luxury items, is growing at the rate of about 3½% annually. In other words, our standard of living is increasing much more rapidly than our population increases . . . Our long term growth figures show physical volume of commercial printing increasing at an annual rate of about the same as all industrial production—3.5%—whereas the physical volume of lithography has been increasing at a rate of about 8% per year. These figures may appear low until you stop to figure the compounding effect of these annual increases. At 3.5%, an industry doubles itself in 20 years. At 8%, it doubles in slightly over 9 years.

He referred to a recent questionnaire sent by the APEA to 1000 of its members. In the 30% return received by the Association, it was indicated that 64 photoengravers are very much in the offset platemaking business.

Mr. Porter impressed his listeners by stating that: "A year ago we knew that the offset platemaking industry represented a $60 million business yearly. Of this volume, 25% or $15 million was produced in trade platemaking plants. If you add the combination photoengraving-offset platemaking plants to the existing 120 exclusive offset lith platemaking plants, it is safe to say that the total is only approx. 200 plants sharing this multi-million dollar market which is now larger than it was a year ago because the total offset platemaking volume has increased also, by reason of the rapid growth of lithography.

". . . Surprisingly," said Mr. Porter, "this survey showed that practically all of the combination platemaking shops were in the small or medium class field." He concluded this part of his address by stating: "It would be interesting to know how many of the big fellows farm out offset platemaking revenue."

Mr. Porter exhibited many examples of printing produced by offset-lithography. During the end of his address, he predicted that "The 1949 dollar volume of lithography is approx. $750 million—and we can expect it to be twice that by 1949."

Magnesium Engravings in the Commercial Industry

In discussing *Magnesium and Its Commercial Aspects*, Charles Wilhelm, President, Lincoln Photoengraving Co., Philadelphia, related there seemed to be a feeling among the members of the PIA Research Committee that photoengravers were just a little slow in making magnesium plates for the trade. At one of the meetings, it was explained to the committee why it was impossible for engravers to supply the printing trade with magnesium plates until enough engravers could master the problems involved in an undertaking of this nature.

In his prepared address, Mr. Wilhelm related that early in October 1948, his firm decided to see what it could do with magnesium metal. He stated: "We have never made very many zinc halftones, and usually discouraged their use, as we were never able to do a satisfactory job of halftones on zinc. However, when we saw the results on magnesium from our experiments with the Bourges Process, we were highly pleased . . . After considerable experimenting with negatives, prints, and etchings, we assembled proofs of the various sample plates and started planning our sales approach:

"(1) Not to make any claims to the buyers where we were uncertain, and to try and make the customer realize that he had to take chances along with us if he hoped to benefit by our attempt to supply him with magnesium plates.

"(2) To determine our selling rates (which was really a problem). After very careful consideration we decided that 20% discount from our basic halftone scale of .07 would be a fair rate to commence with.

"(3) We held two evening meetings to which we invited the buyers to inspect the results of our experiments. At that time we had Mr. Bourges and Mrs. Mayfield to explain their process in conjunction with work of various subjects, including highlight halftones, line, color, and various halftones—all made on magnesium metal.

". . . in January 1949 . . . we were convinced we had something really worthwhile." He stated his firm is highly pleased with the results obtained so far. Outside of the soldering problem and the question of deterioration in storage, the making and use of magnesium plates is satisfactory. Magnesium sales have increased.

Mr. Wilhelm illustrated one instance related to the use of magnesium plates

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This four-fold service means you get your Herrick Ink as you want it and when you want it. Try some – for newsprint, letterpress or offset.

- TANK CARS
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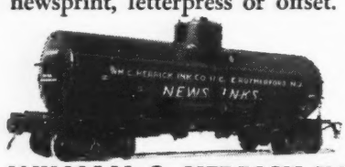

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WILLIAM C. HERRICK INK COMPANY, INC.
Main Office and Plant: EAST RUTHERFORD, NEW JERSEY

NEWSPAPER & PRINTING PLANT ENGINEERING

NEW BUILDINGS • MODERNIZATION
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"REGAL"
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This name for our new Monocork Blankets is fast becoming the "buy" word of pressmen who are discovering the advantages we have built into this material.

If you have not yet had an opportunity to see what "REGALS" can do for you, now is the time.

YOU BE THE JUDGE!

NEW ENGLAND NEWSPAPER SUPPLY CO.

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WORCESTER MASSACHUSETTS

BRANCHES: New York—Chicago—San Francisco—Tulsa

WOOD DRY MATS
Oldest in the Country
First in the Field

To keep abreast of the fast moving tide of stereotyping developments and techniques requires rigid manufacturing control and endless laboratory research. That's why Wood Dry Mats are "tops" among experienced craftsmen.

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TYPE METAL REMELTING FURNACES

(A) 'Surface' Type Metal Remelting Furnace equipped with Atmospheric Burner and hood. Available in capacities up to 2500 pounds of metal.

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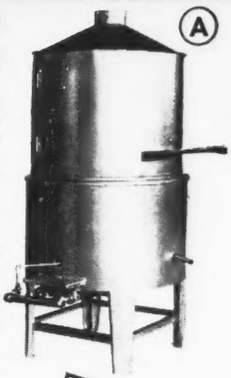
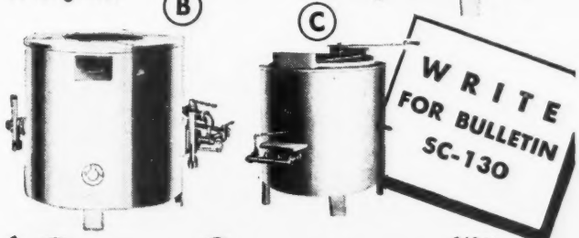
(All types can be equipped with hood)

'Surface' Gas-Fired Furnaces for type metal remelting are designed to provide the industry with an efficient, rapid remelting furnace of long life.





WRITE FOR BULLETIN SC-130

2634A

'Surface' Standard Rated FURNACES

SURFACE COMBUSTION CORPORATION, TOLEDO 1, OHIO

35 YEARS EXPERIENCE
Designing

Newspaper & Printing Plants
New Plants • Remodeling and Production Studies

• Surveys and Reports
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MORTON L. PEREIRA & ASSOCIATES
Engineers and Architects
100 West Monroe Building Chicago 3, Ill.

by saying: "For the past two or three years we have been making catalog illustrations for a large manufacturer and etching the plates on copper. This year's catalog was larger than any previous year and entailed a heavy plate investment. Because of this, some thought was given to the use of a gelatin process in place of letterpress. When this turn of affairs arose, we suggested magnesium be considered as an economy measure . . . The result—a job kept in letterpress and at a saving of $1200 or $1400 cost, and weeks of production time for the advertising agency's client.

Mr. Wilhelm quoted his production manager, Charles Willey. Mr. Willey states that magnesium seems to be the answer to a great many production problems. The photographer shoots a normal halftone negative, the stripper squares the job and if it is outline, he opaques it. Then it is ready for the printer. In the printing of magnesium a little more care is required than for the printing of copper or zinc. Deposits of magnesium seem to flow over the surface, causing many spots when not coated properly. In coating first with bichromate and then with cold top solution, the print comes clean.

Mr. Willey also stated: "We have run experiments from a solid black to a highlight gradation, staging out portions at 5 sec. intervals, and the results show that no gradations are apparent. But from middletone to highlight, definite steps at each stage prove that the highlight dot etches much faster than the shadow dot and gives a much snappier and crisper job. Very little retouching is needed.

"Routing of magnesium is similar to copper except on large areas where the metal must be routed down. Here we have trouble keeping the metal flat in order to get a clean routed bottom. Beveler cutters and routing bits hold up very well on magnesium.

"There are still some difficulties in repairing this metal, therefore the finishing is limited. Picking up a scratch is almost impossible as the metal is brittle and chips off . . . Making the job over is the quickest way to get a satisfactory plate."

Mr. Wilhelm quoted Mr. Willey as saying that up to the present time, after one year of handling, no complaints had been received about some printing inks etching the surface of magnesium engravings. Magnesium is hard and mats well. It stands up under long press runs on any stock.

Newspaper Color

Homer L. Green, Vice President, Wilson Engraving Co., Dallas, Tex., presented a splendid paper entitled *Selling and Producing Newspaper Color Work.* He discussed his company's experience in making color advertising plates for Dallas' two newspapers—the *Morning News* and the *Times-Herald* which do not operate photoengraving departments but buy engraved plates from commercial shops.

Mr. Green related that his firm reproduces newspaper color by several different methods—such as direct screen separation and continuous tone and screen tints, thus enabling his firm to accept most any type of art or copy the customer would have.

He stated that none of the processes used by his firm is new. He did explain in considerable detail that in the making photoengravings for newspaper color work the work must be executed according to the peculiar requirements of newspaper printing. He stressed that the planning of color layouts should be done so that enough open space will be allowed for the important register marks to be placed *within* the printing areas. He also remarked: "We also try to cut the metal so the edges will register one with another."

(*Continued on Page 66*)

Make your own
RUBBER PLATES
PLASTIC PLATES
RUBBER STAMPS

Featuring . . .
- Precision-ground, floating platens
- 30-ton pressure
- completely automatic assuring *PERFECT RESULTS*

Bench Models 9″x10″ and 10″x12″ platens
Models up to 20″x24″ available

New! Electro-Copyst
ALL-ELECTRIC
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Simple to use • Reasonable to buy
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IN EVERY GOOD COMPOSING and STEREOTYPE DEPARTMENT

BOOTH'S Zink Cut Cement

There is only one reason why BOOTH'S Zink Cut Cement is found in hundreds of composing rooms and stereotype departments —that reason is that it is the best known method of quickly mounting cuts and holding them fast.

75c per tube—$6.00 per dozen in the United States

Note our new address

These Rubber Rolls are EXTRA GOOD

That's the verdict of users everywhere — that BOOTH'S Rubber Rolls are smooth and always receptive to line-composing machine keyboard cam action. They have maximum cam gripping qualities and resistance to glaze . . . are always of even diameter when properly applied to the roll shaft . . . Yes, they're always good.

$1.45 per pair or $7.75 per dozen

E. A. BOOTH RUBBER CO.
2855 SCARBORO ROAD, CLEVELAND HEIGHTS, OHIO

SYNTRON
VIBRATING
PAPER JOGGERS
Save Money and Time!

Reduce the high cost of production by speeding up jogging — getting more stock to the cutter, to the press, to the bindery—in a shorter time.

Write for Folder

SYNTRON CO.
577 Lexington, Homer City, Pa.

BEVERIDGE *Says:*

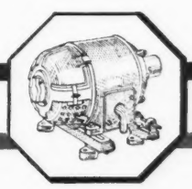
Maybe Advertisers Have A Right To Be Cranky

It just may be that when advertisers complain about reproductions—sometimes to the point of being cranky—they have a justification for their crankiness. After all, the beginning of fine newspaper reproductions starts with the finest possible dry mats—dry mats that are uniform and dependable — batch after batch. Switch to BEVERIDGE and give your advertisers uniformly good reproductions . . . watch their crankiness disappear. Send for an order today.

New Products Division
The Beveridge Paper Company
Indianapolis 4, Indiana

KIMBLE

CUSTOM-BUILT MOTORS



STANDARD OF PERFECTION IN THE GRAPHIC ARTS INDUSTRY FOR NEARLY A HALF CENTURY

KIMBLE ELECTRIC
Division of Miehle Printing Press & Mfg. Co.
2858 MT. PLEASANT STREET
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DISTRIBUTED BY AMERICAN TYPE FOUNDERS

YOU CAN DEPEND ON *EASTERN*
For better *EQUIPMENT AND SUPPLIES*
For better *SERVICE*
For better, *CONSISTENT ECONOMY*

Here, under one roof, you can find HUNDREDS of tested printing production supplies. Each offers an **extra** measure of dependability for every phase of production!

NEW LOW PRICE ON PLATE-TAK—The SUPER-THIN Cut Mounting Tape . . .

Unequalled for speed, convenience and cleanliness in mounting and positioning ALL types of cuts on either wood or metal base. PLATE-TAK eliminates use of tacks, cements and glues . . . releases cuts cleanly, free from sticky substance. No special cleaning necessary before filing! Matrices remain unmarred and free from excess glue . . . extreme thinness prevents bumping effects on halftone screens. NOW AT NEW LOW PRICES!

For added speed and convenience, a new, specially designed PLATE-TAK DISPENSER is available. It's simple to operate, has no complicated moving parts, and is priced so low that it **pays for itself in time and tape saved!**

- TRU-MOLD CORK MOLDING BLANKET
- FLECTO GUMMED BACKING FELT
- DIRECT PRESSURE MOLDING MATERIALS

Order your supplies from our new catalog now! If you do not have a copy we'll mail you one on request.

EASTERN FOR ECONOMY
EASTERN NEWSPAPER SUPPLY, INC.
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fabulous PROFITS
created by a
FABULOUS FOLDER

A new Automatic BAUMFOLDER LINE has everywhere become . . . THE PRINTER'S GOLD MINE IN '49. The All-Buckle 14x20 five-fold to the All-Buckle 28x44 . . . with selectivity of nine to fourteen folding plates (any combination of which can be used simultaneously . . . making it the most versatile Folder in the world . . . and incidentally the fastest . . . therefore the most profitable) enthusiastically acclaimed from Coast to Coast. Every hour a "BAUM" rolls off the production line. Please telephone, *reversing charges*, LOMBARD 3-8165 . . . ASK for me personally. Let's talk it over. We want *you* to start making fabulous profits now . . . It's yours on Pay-For-Itself terms.

RUSSELL ERNEST BAUM
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Mr. Stereotyper;
Ask about the Mono-Molder,—dry mat molding without cork, creeper or board, also ask about new purchase plan at reduced rates on Gummed Felt Packing.
AMERICAN PUBLISHERS SUPPLY, INC.
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100% AUTOMATIC SLUG SAWING
Odd measure slugs sawed to any measure as ejected from linecasting machine. Fast-accurate-economical.
MOHR
MOHR LINO-SAW CO.
128 N. Union St. Chicago
SAW

Another tip on making color plates was given by Mr. Green when he said: "We have found that if a free, easy and loose technique of drawing the color overlays is used, an absolute register is not required and a more pleasing result will be accomplished."

Mr. Green stressed that every method and short-cut known to the engraver must be employed in the production of newspaper color plates, because it must be fast and economical. Most all publishers believe photoengravings are too expensive, he concluded.

Through exhibiting many examples of actual tear sheets from newspapers, Mr. Green explained the ways and means for obtaining certain color results and for producing work economically.

In the concluding part of his address, Mr. Green stated: "Newspaper work is a specialized field of photoengraving and must be thoroughly understood before you can render a good service to the publisher. We have run four-color plates valued at $950 that were not as effective as those that cost one-half that amount."

Cooperation and Coordination Needed

In speaking before the photoengravers' convention in San Francisco, Arthur L. Ross of R. R. Donnelley & Sons Co., stated that cooperation and coordination in the letterpress industry have always been needed, but now with heatset printing and the press speeds demanded, both are indispensable.

"The engraver, the electrotyper, the paper man, the ink man, and the printer can no longer be running separate businesses, working independently of each other with a slack of cooperation and coordination. The prime need of the letterpress industry today is working together . . . What the letterpress industry needs is to hold the advantages we now have and develop faster and better methods of production to meet the demands of the times."

He told photoengravers their challenge is to make the kind of four-color process engravings to fit the needs of heatset perfecting multicolor presses.

Said he: "The heatset perfecting multicolor press that prints four colors on each

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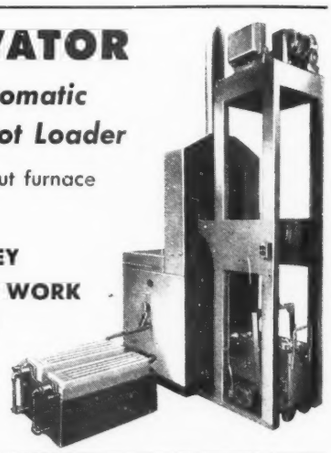

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side of a web of paper and delivers a folded product accounts for the majority of process color plates now made and used. Because of the drastic differences in the application of ink, the heatset press requires an entirely new technique in the making of engravings and of printing.

"On this newly developed heatset press all four colors are applied one over the other in a fraction of a second, after which heat drives off a solvent in the ink and a cold-water cylinder sets the balance of the ink. On this press only one packing cylinder is used for printing the four colors, and each of the four colors is printed in exactly the same position on this packing . . . This restricts the amount of makeready in local areas that formerly overcame some of the engraving shortcomings. The trapping problem with heatset inks is more difficult than with the old-fashioned oil inks. This means that engravings made for heatset printing must be more accurately produced in order to obtain the required color reproduction.

"Unless your proofs can be matched by the average skill of pressroom craftsmanship," he warned, "and done so with a minimum of manipulation of impression and inks, you have failed.

"Every large publication, with its printer, has set up specifications for engravers to follow in making engravings, so the engravings will print on his equipment, using the paper stock upon which his particular magazine is printed.

"While each publisher has his own specifications, there are certain basic specifications that apply to all engravings made for heatset multicolor printing.

"(1) Minimize amount of overprinting of inks by omitting all unnecessary undercolors in the engravings.

"(2) Etch plates so as to avoid 'connectors' between the dots wherever possible. When necessary to reduce color, re-etching is preferable to tooling. If tooling is necessary, avoid shooting in one direction to avoid screen pattern.

"(3) Avoid cut-outs. While cut-outs are definitely beneficial in some engravings, we firmly believe it is better not to use them in any color unless the cut-outs can be made by following a definite design or outline inside the overall design.

"(4) Watch dot structure. The perfect dot has a flat top with slightly tapered sides that have been etched clean, smooth and deep. If the dot structure is faulty, the plates will not mold properly, making it impossible to produce satisfactory running plates.

"(5) Avoid short vignettes. Longer vignettes permit better shading off of color and reduce hard edges on the press.

"(6) Avoid screen pattern. We have found that the use of 133 line screen for the yellow plate, with 120 screen for the other colors minimizes screen pattern on papers which require this screen ruling.

"(7) Always proof wet. Any drying time between colors makes it impossible to match a proof under high speed printing conditions. It is now possible to pull a four-color proof in 3 sec. This, up to now, represents the closest approximation to high speed printing. If you proof on single-color presses or on two two-color presses, your four-color proof should be made in a maximum of 45 sec.

"The makeready must be confined to the underside of the plate and kept at an absolute minimum, and merely to level impression. Always be sure that the amount and kind of inks are used on the paper specified by the publication."

The speaker advised his photoengraving executive audience that no longer, with heatset printing, can the printer make allowance for errors in engravings by adjusting ink and makeready.

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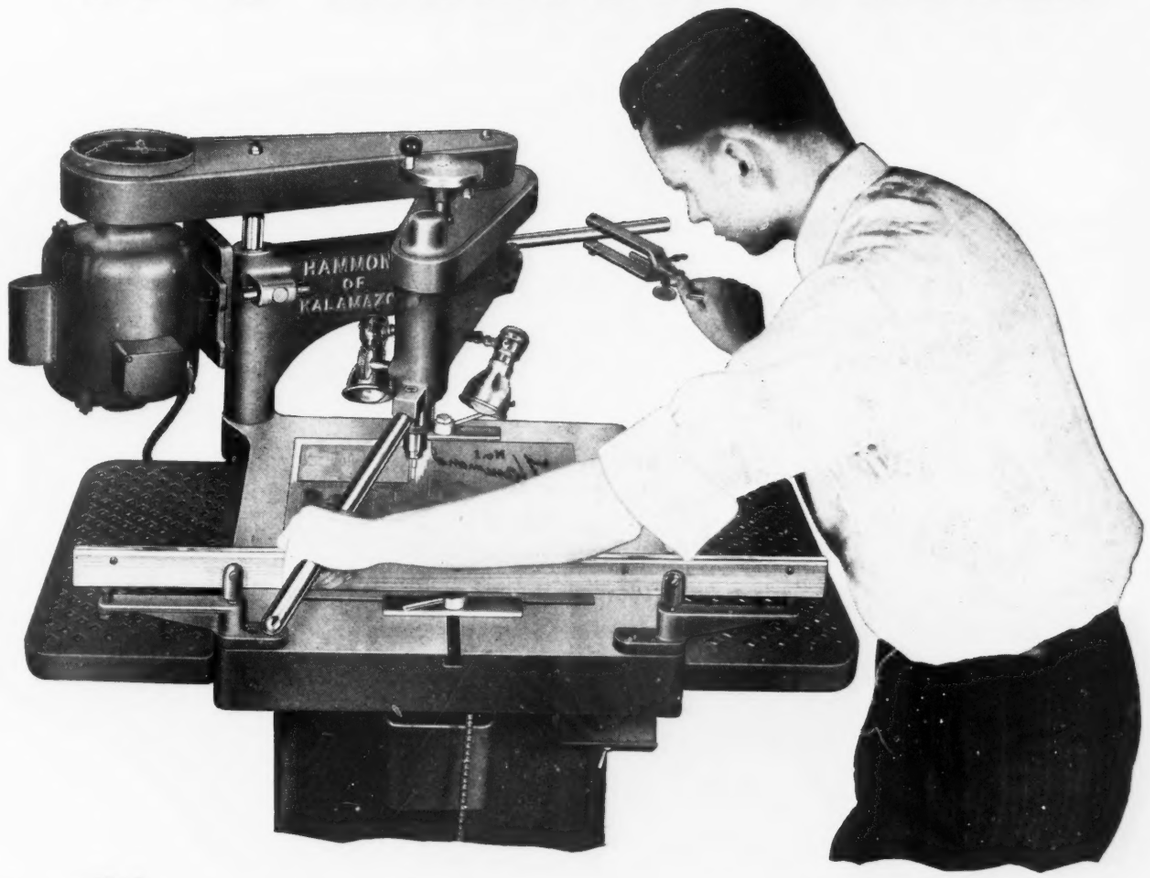

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